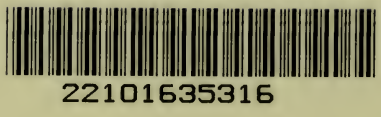

Times Aug 1st 1903 British
Medical Association —
Dr Jon'y Hutchinson — submitted
overwhelming evidence that
leprosy was non contagious,
mostly found husband &
wife affected — probably
caused by some article of
food — he had tried to
inoculate himself by
contact & touch — In Norway
there there is a taste
for rotten Herrings
the disease is found
— The Jains (Indian Vegetarians)
did not suffer from
it — In Egypt where stinking
fish is eaten 1 in 10000
are lepers — The bacillus
is not inoculable — it
is a similar disease to
tuberculosis — & resemble
each other in many points
The Jains in India are
free from it whilst
their neighbours suffer
The publich & unknown
unwritten stinking
prohibitions connected
with leprosy

Leviticus 4 Times
proper history of the
bacillus - he urged to
call leprosy fish
eaters joint - Tricourie
Hansen found the
bacillus he has called
in fish eaters tuberculosis
It is not improbable that
the two diseases are
under the influence
of change of food
harmonitable

There are small
proportion of the Jews
who suffer but they
are not strict regulations
In Cape Colony
there 10,000 are
lepers

IS LEPROSY INFECTIOUS

The question whether leprosy is infec
and what is its cause, was yesterday disc
by the Tropical Diseases Section of the Br
Medical Association, at Swansea.

Mr. Jonathan Hutchinson (London) read
paper in which he said overwhelming evid
was opposed to the belief that leprosy was s
by any ordinary mode of contagion. To th
ing of fish in varying stages of rottenness
ascribed the whole of the leprosy in the wo
The medical profession should declare it a
injustice to imprison lepers for life.

Sir Patrick Monson confessed that he wa
a disciple of Mr. Hutchinson's, and o
speakers also dissented.

The offices of the Royal Albert Orphan As
(Bagshot) have been removed to 11 and 12,
ment's-lane, Lombard-street, E.C.

SELECTED SUBJECTS

IN THE SURGERY OF

INFANCY AND CHILDHOOD.

BY THE SAME AUTHOR,

THE SURGICAL DISEASES OF CHILDREN.

SECOND EDITION—REVISED AND ENLARGED, 1889.

Messrs. CASSELL & CO., LUDGATE HILL, E.C.

ALSO,

A MANUAL OF ANATOMY FOR SENIOR STUDENTS.

Messrs. LONGMANS, GREEN & CO., LONDON.

SELECTED SUBJECTS

IN CONNECTION WITH THE

SURGERY OF INFANCY AND CHILDHOOD,

BEING THE

LETTSOMIAN LECTURES,

DELIVERED AT THE MEDICAL SOCIETY OF LONDON, 1890,

BY

EDMUND OWEN, M.B., F.R.C.S.,

Senior Surgeon to the Hospital for Sick Children, Great Ormond Street; and Surgeon to St. Mary's Hospital, London.

(PUBLISHED BY REQUEST.)

LONDON:

BAILLIERE, TINDALL, & COX, KING WILLIAM ST., STRAND.

1890.

Dear Dr. Theodore Williams,

From the time that I first became officially connected with the Medical Society of London, I have always regarded you as one of its most zealous and loyal supporters.

It has given me great pleasure to be called upon by the Council of the Society to deliver the Lettsomian Lectures during the year of your Presidency, and this pleasure will be increased if you will permit me to dedicate them to you.

I am,

Yours very faithfully,

EDMUND OWEN.

64, *Great Cumberland Place, W.*
March 20th, 1890.

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SELECTED SUBJECTS

IN THE SURGERY OF

INFANCY AND CHILDHOOD.

MR. PRESIDENT and Gentlemen,—My first duty is to express my grateful thanks to the Fellows of this Society for the confidence which they have shown in me in appointing me, through their Council, Lettsomian Lecturer for the present year. But when I look through the List of those Fellows of the Society who have preceded me in the occupancy of this Chair, men whose professional reputation was well-nigh as extensive as civilisation itself, and when I review the splendid and original work which many of them were thus enabled to lay before their hearers, the feeling of intense satisfaction which I experienced on hearing of my honourable preferment, becomes shadowed over with one of diffidence.

To mention a bare half-dozen of those my predecessors, and selected only from those whose actual voice is now stilled, we have Owen Rees, Guthrie, Sibson, Edwin Lankester, Anstie, and Habershon. And dare I venture to supplement these names by a selection made from those who are yet working amongst us, I should present such a list, that he must, indeed, be a bold man who would not experience serious misgivings on personally approaching it.

In my mind's eye I see my old master Francis Sibson, the Lecturer of five-and-thirty years ago, throwing himself heart

and soul into his discourse upon *Respiration* and *Circulation*, and laying part of the foundation of his great and classical work on *Medical Anatomy*, which he published soon afterwards ; likewise Owen Rees clearing up hidden pathology in connection with the *Urine*, and Lankester eloquent upon the life-history of *Parasites on the Human Body*.

For this year at least the Lettsomian Lecturer will advance nothing or but little of newness or originality, but will content himself with passing in critical review certain subjects in connection with the Surgery of Infancy and Childhood which have of late been attracting considerable attention, and which, in his opinion, are deserving of still more attention.

This is not the first occasion that the Surgery of Childhood has been the subject of the Lettsomian Lectures, for five-and-twenty years ago the lecturer, Mr. Bryant, announced that in appointing him the Council had chosen this as the topic of his discourse. Time has flown. The infants and children whose cases were the material of those well-known Lectures are grown into men and women, many doubtless with Mr. Bryant's craft-mark upon them ; and no apology need be offered if, another generation springing up, the Surgical Diseases of Children are again dealt with from this Chair.

Enlarged Lymphatic Glands.

The subject on which I would first speak is one which is of great and constant interest to every member of our profession, whether he be occupied in medical, surgical, or general practice—the treatment of enlarged glands, and especially those of the neck.

I will begin by making a general but strong statement, that for a branching scar upon the neck of a child, the result of abscesses in the cervical glands, someone, not the child, may be held worthy of blame. Sometimes it may be the parents who are to blame, in that they neglected to seek professional advice when the disease was appearing in a mild and manageable form ;

or who, having obtained skilled advice, declined to be guided by it. But more often the blame rests, I fear, with the medical attendant himself. Generally he has the opportunity of watching and treating the case from its very beginning, but it has gone on so slowly and quietly that he found it an easy and convenient matter to adopt a course of masterly inactivity regarding it, and the more so in that he felt that this accorded well with the views of the parents. But in such a case as this it is clearly the duty of the medical man to direct, not to acquiesce.

Truly, he may urge that he has given the ordinary and routine treatment a full and fair trial. That is to say, he has painted the neck with tincture of iodine until it was darkly stained and the skin was blistered and sore; and that afterwards, when, "in spite of" this, the gland had passed into a condition of pathological bankruptcy, he had applied a long series of soothing poultices. Yes, this, we know, is the general treatment of enlarged cervical glands, at least as regards local measures.

(Tincture of iodine, what would practice be without you? And to think that your chief virtue when thus employed resides in the stain which you leave upon the skin! Without its colour-property, tincture of iodine would offer but slight attraction in general surgery, at least as an external application.)

After a prolonged and disappointing course of this treatment the gland begins to break down in the centre, and to grow soft. Then, too often, the second part of the routine treatment is entered upon, the long series of poulticings. In due course the skin of the neck grows irritable and eczematous, and, as the glandular softening continues, it becomes dusky, sodden, and undermined. Still nothing surgical—properly so-called—is undertaken; Nature is allowed to follow her own course.

I am not one of those surgeons who have never a good word to say for a poultice. But still I have not such faith in its therapeutic value as had Bacon, for instance, who affirmed of a poultice that it "relaxeth the pores, and maketh the tumour apt to exale."

But Bacon was only a philosopher, and philosophy does not greatly lend itself to practical surgery. There are many practitioners who have, as regards poultices, made no advance upon the Baconian method, and who apply them to the child's neck with a faith like that of the African resorting to his fetich. But can moisture and warmth applied to the surface of the neck have any influence upon the condition of glands which are enlarging beneath the sterno-mastoid? I think not. But without doubt it can and does render the skin sodden and unwholesome, and, therefore, less prompt at healing when at last the gland is dealt with in a business-like manner.

A word or two must be said, I suppose, about the use of the ointment of iodide of lead, a drug which for many years held a front place among the so-called "discutients." (Discutient: something which shakes something else to pieces.) The very word is obsolete. I doubt if even an Examiner in Therapeutics at the University of London, where a belief in the practical importance of a vast acquaintance with the intricacies of Materia Medica obtains its highest development, places much faith in "discutients." However, the ointment leaves a stain upon the skin, and its vigorous and systematic application may, after the manner of massage, exert a beneficial influence upon the circulation of the gland in the earliest days of its engorgement.

Possibly the medical attendant had advised a more radical treatment and the parents of the child declined it, either because of an instinctive dread of operation, or because of a fear lest the scarring which must attend it should be more unsightly than that which would follow the spontaneous evacuation of the abscess. Or it may be that the surgeon, unaware of the strength of his position, hesitated to urge that treatment which he surmised to be the proper course, lest, after all, the case did not turn out as satisfactorily as he had anticipated, and lest an unsightly scar should give lasting and unfavourable evidence against him. His line of argument was sound enough from the point of view

of the man of the world; but from that of the practical surgeon it was fallacious in the extreme. Had he known what modern surgery can do for these enlarged or broken-down glands, he would have strongly urged their removal by operation long ere that, and speaking from experience of both methods, he could have given confident assurance that he, working from the outside, and choosing his time, could produce a far better result than Nature working, as she does, from the dark interior, and fettered, as she is, by antiquated notions which were her guide, not only before the days of Lister, but even before the Deluge.

I speak with all respect of "natural surgery;" but we should no more leave these cases of enlarged glands to the unaided treatment of Nature than we would a carious tooth or a suppurating joint. In the first place Nature is slow; and whilst she is arranging for the spontaneous opening of the abscess, septic particles are being carried into the glands which lie next above and next below in the lymphatic chain. Thus, setting up inflammation in the surrounding structures, and rendering the skin adherent and undermined, she seeks relief from tension by carrying a lighted torch, as it were, amongst highly inflammable tissues. The result which follows is such as that which Samson desired when he took the 300 foxes, and, having coupled them tail to tail, put a lighted firebrand between the tails and set them loose in the ripe and standing corn of the Philistines. The surgeon who thinks it best to leave things to Nature is encouraging suppuration which he can neither control nor guide, and when perchance he is at last compelled to take up the scalpel, he finds a matted mess of muscles, vessels, and nerves bathed in pus, and scarcely recognisable.

The mucous membrane of the pharynx and tonsil is a likely area whence irritation may first reach the cervical glands. A transient attack of "sore throat" may suffice to have begun the swelling in the neck, for the net-work of pharyngeal lymphatics is in close communication with the concatenate glands. And for

this infection contaminated water or impure air is often to blame. Due care, therefore, must be taken lest the top of a shaft or pipe which ventilates a house-drain or closet be discharging itself within measurable distance of nursery and attic windows, and, if opening above the roof, lest there be a risk of down-currents of air bringing the miasma near the children.

A few years ago I had under treatment children from three different families residing in a suburb close to London, each of whom was affected by lymphatic enlargements in the neck, which, in several instances, went on to suppuration. In one family there were five children who were, or had been, the subjects of swollen glands. The attack was attributed to foul air, and, on investigation, the source of this was found in the open ventilator of a main-drain which was close by. The correctness of this theory was borne out by the fact that as soon as any of the ailing children were sent away, they duly lost all unhealthy symptoms, whilst a relapse occurred on their return home; and this did not happen on one occasion only. In the case of another child in that neighbourhood, whose general appearance gave ample evidence that her enlarged glands were not under the influence of struma, we found that a three-inch ventilating pipe had been carried from the main sewer about 20 feet up the trunk of a tree not very far from the front door, and that at a little distance from it the air had an unmistakable and powerful odour of sewer-gas. In certain states of the wind this poisonous air must have been carried right against the house. And I have just recently seen in consultation a little child whose abscesses were unhesitatingly ascribed by his medical attendant to a shaft which, ascending from the house-drain, opened not far above the nursery window.

There are two reasons for the dependence of the glandular enlargement upon absorption from the pharyngeal lining so commonly escaping recognition. The first is, that it is not always looked for; and the second is, that when the glands attract attention and

the throat is examined the pharyngeal irritation may have entirely passed away.

As regards the dental lymph-shed and cervical adenitis, how frequently is a slightly carious tooth which may never have ached, or of which, if it has ached, the child has for obvious reasons made no complaint, been the cause of the trouble! I think that I ought almost to apologise for alluding to this obvious association; but from the frequency with which it is over-looked in practice, I deem that no apology is actually needed. I will briefly say that I am sure that it would be an excellent thing if every child could be taken twice a year to the dental surgeon for examination and report. Of the influence which chronic irritation of the ear, scalp, conjunctiva, and nose may have in causing the enlargement, especially in weakly children, I will say nothing more than that it must always be remembered, and that the possibility of its existence should be inquired into in every case.

If the enlargement is on one side of the neck only, both sides of the head and face should be thoroughly inspected, and in a good light, for the lymphatic vessels do not take so regular a course as the veins, though for the most part they run much as the veins do. Thus, I have had under treatment a case in which, as the result of a sore upon the *left* side of the tongue only, the lymphatic enlargement first occurred upon the right side of the neck—evidently the lymphatics must have wandered across the middle line before finding a gland on which to vent their wrath.

Supposing that no cause for the enlargement can be discovered, (not even a nasal catarrh), the child must be treated on general principles, and, if convenient, sent for a change of air. If it be admitted that miasmata are the not infrequent cause of the enlargement, it is at once seen why a change of residence should be so beneficial. And supposing that the child has a history of strumous or tubercular descent, sunshine, warmth, fresh air, and sea-breezes are most desirable for him, and especially as our cold,

foggy, and damp winter is approaching. It were a new life to the child then to place him in a clime where the myrtles can flourish in the open air throughout the year, and where gentle breezes from a southern sea bring him almost day by day an increasing store of health and vigour. Though Broadstairs and Ramsgate may not be exactly such places as I am figuring, in that they are during the coldest months at times somewhat too keen and bracing, still they are rare havens for delicate children to winter in. But of all places that I know in England, commend me to Bournemouth. I have seen no other winter quarters so delightful, and if I were told that Alma Tadema resorted thither every Christmas to paint his beauteous skies and seas, his lights and shades, and his oleanders, I should not be greatly surprised.

If the gland goes on increasing in size whilst the glands in the chain next above it and next below begin to swell, the sooner that all three of them are weeded out the better. For experience tells us that if left they will in due course, in all probability, become joined together, and that though they may at first be freely moveable, they will ere long be matted to the surrounding tissues, and form an unsightly projection at the side of the neck. Then the central part of the mass begins to soften, and the skin over it to become thin and discoloured. I have heard the aspirator recommended in these circumstances, but in my opinion for dealing with this condition it is worse than useless. It may succeed in drawing off some little puriform fluid, but its tubular needle at once becomes choked; and, being taken out, leaves a track whence leakage occurs, and by which ferments can enter from without and render the abscess septic.

There was good reason in the advice, which used formerly to be given, that the surgeon should not interfere with the softening gland until it was "ripe;" that is, until the cortical as well as the central part had broken down; for then, if the disease were happily confined within the single capsule, the incision would procure its entire evacuation, and bring the trouble to a happy termination. If,

on the other hand, the cortical part had yet to disintegrate, that process would be accompanied with septic inflammation and with, as a result, local disturbance of uncertain and possibly serious extent. Only a few years ago nothing was known of the power which surgery was about to acquire of cutting the disease short, and so of saving the child many months of wearying treatment, and of protecting him from the no inconsiderable risk of general infection, to say nothing about the artistic or cosmetic value of the treatment. And for this great advance we are chiefly indebted to Mr. Pridgin Teale.

It may be that a gland whose central part has broken down has, in a few rare instances, undergone complete resolution and absorption, but the chance of this occurring in any individual case is so unlikely that for all practical purposes it must be disregarded.

The advice which used to be given in these cases was, "Send the child to Margate." It was, except perhaps in the coldest weather, excellent counsel, and it is still better now: for such a child might not improbably come under the care of one of the surgeons of the Sea Bathing Infirmary, Knight Treves, Thornton, or Rowe. Not one of these three gentlemen, I apprehend, would be likely to err on the side of underrating the value of Margate air in these cases, but their estimation of it evidently does not amount to credulity; and it is interesting to note that at least two of them are amongst the most enthusiastic of those surgeons who consider that the best line of treatment for cases of chronic glandular enlargement is the removal of the glands by operation.

There is not room for much difference in the methods of procedure. But in order to render this lecture the more complete, yet at the risk of being accused of occupying time in the consideration of matters which have already received fair recognition, I shall describe the operation as I am in the habit of practising it.

Before operating, however, the surgeon should let it be clearly understood that his interference will not *necessarily* put an end to

all the trouble. Let him work as carefully as he can, some of the infecting material may escape removal, and it is, I apprehend, more than possible that in an extremely unhealthy subject his operation may actually cause further progress of inflammation ; but experience tells us that if this contingency does ever occur it is altogether exceptional. For after extensive operations in necks of wretched children whose glands are involved in an advanced and widely spread decay, a vigorous clearance and erasion acts like the pouring of oil on stormy waters. But this much he can almost safely promise, that his operation, which will be associated with no serious risk, may be trusted to effect a very great improvement, and that if it unfortunately have to be repeated, it will probably have prepared the way for a final and completely successful attack. The parents ought also to be made to regard the operation as not in any way of doubtful expediency, or of a speculative nature, but as one that is the outcome of surgery which is not only advanced but sound, not only scientific but practical and approved. Then there is the alternative, which should have due weight when the operation is being urged : if nothing be done the case must take its own tedious, unsatisfactory, and even perilous course.

The Operation.—The hair should be cut short and the side of the neck thoroughly cleansed. Chloroform having been administered, a sufficiently free incision is made over the tumour—most likely along the anterior border of the sterno-mastoid. It is an error to try to keep the incision very small, for a good deal may have to be done through it—much more, perhaps, than the operator had anticipated. A cleanly-cut wound promptly heals if its edges are carefully adjusted, and its site is eventually marked by a scar of comparatively trivial dimensions.

Having made this incision through the skin and perhaps at the same time the platysma and deep fascia, I lay aside the scalpel and expose the gland by working through the intermediate stratum of connective tissue with a steel director and forceps. Vessels

entering the gland I tear through with two pairs of forceps, so as to avoid needless bleeding, and at last the only moorings are the lymphatic vessels which connect it with the glands above and below. In all probability these glands are also enlarged to a slight extent, and they are therefore weeded out along with the chief offender. If there should be any considerable bleeding—and as a rule there is not—it is easily checked by the temporary use of catch-forceps. I believe that this manner of dealing with the glands is much better than that of "dissecting" them out. And I think that a practitioner who, indeed, may be assured that it is a simple and safe operation, is more likely to undertake it than he would be to adopt a prolonged dissection, unless he happened to be keen with the scalpel and confident in using it.

The cavity is then to be syringed out with a weak mercuric solution, and afterwards dried by using a swab of mercuric wool. Having prepared some horsehair by soaking it in the warm antiseptic lotion, I then put in sutures of that material with a fine needle, which I introduce close to the edges of the wound. Through the lowest part of the wound I lay a few strands of horsehair or a slender slip of drainage tube.

One word more about the sutures. It may possibly be objected that when the wound is soundly healed and the scars, which were at first pink, have emptied their superfluous blood-vessels by continuous contraction of their substance, the positions of the sutures will be marked by minute white dots, which, placed at regular intervals along the sides of the chief scar, attract attention and cause dissatisfaction. One often sees such marks seriously detracting from the otherwise excellent results of a plastic operation—as after hare lip, for instance; but if the sutures are taken out on the first or second, or at the very latest at the third day after operating, there is no fear of this contingency. And of all material for the sutures, nothing in my opinion answers so well as ascepticised horsehair.

A scrap of moist protective is then placed over the wound, to prevent the dressings adhering, and over this a bulky pad of

wood-wool is firmly bound by a bandage encircling the neck. The child being put back in its cot, no ordinary pillow is allowed, but a small junk is placed beneath the occiput, and the head is steadied between a couple of sandbags almost as large as a quartern loaf. From this position the child is not allowed to stir, either for feeding or for any other purpose whatever.

Next day the dressings are removed without disturbing the child; the drainage material is withdrawn, as are also most of the sutures, though if it be thought expedient some few of them may be left for a day or two longer. These fine non-absorbent stitches can do no harm, and they may do much good in securing prompt union. The skin on either side of the wound is then drawn up and steadied by a couple of strips of waterproof strapping. If all the sutures have been withdrawn at this dressing there will be no need for inspecting the wound for several days, so, to prevent the dressings becoming soiled when the feeder is being used, it is well to have them covered by a handkerchief which the nurse can change at her pleasure.

I am sure that there should be no hurry about getting the child up again; by means of brightly-coloured pictures of contingent happiness, he whiles away the time, a contented and expectant lotos-eater. But when he is allowed to get up, his neck should still be kept at rest by means of a stock of stiff buckram covered with linen, which is wide enough to reach from his chest to his chin, and from his shoulders to his ears.

The account thus given is that of a simple case—such, indeed as each should be if the best result is to be obtained, namely, a prompt recovery and a small scar. But, unfortunately, it often happens that almost as soon as the skin is incised pus escapes, and, proceeding further, the surgeon finds that he has to deal with a suppurating cavity which encloses, and communicates with the interior of a broken-down gland, and which also contains several enlarged lymphatic glands. The best that can then be done is to lay open, scrape out, and irrigate the cavity, taking away or

scraping out with a sharp spoon the wreckage of the broken-down glands, enucleating each of the enlarged glands, and making due provision for temporary drainage. But supposing that in this or in any other case, a piece of a capsule, or a gland, has to be *dissected* away, it is hardly necessary to say that the scalpel must be made to "hug" the gland, lest troublesome hæmorrhage, or something worse, result.

On very few occasions I have had to divide the sterno-mastoid in order that I might effectually deal with enlargements beneath it; this is rarely needed. When, however, it is needed, it is not such a serious matter as it might seem at first sight to be, for in these cases the muscle is so thinned and spread out as to be a structure of no great surgical importance. The operator of to-day must be prepared to sacrifice many of his old anatomical prejudices to surgical expediency.

To give an instance of the quiet yet determined way in which gland after gland may become implicated throughout an entire chain, I will mention the case of a boy of 2½ years who was brought to me in October, 1884, on account of an enlargement of two glands in his left groin; one of them was of the size of an almond, and the other of a pea. The enlargement was evidently due to irritation caused by a hard mass of smegma which was imprisoned beneath a long and tight prepuce. I advised immediate circumcision; and, in answer to the father's question, I said that if this were done *forthwith* the glandular enlargement might subside without further treatment. After a certain amount of delay the prepuce was removed, but the wound was long in healing, and when I next saw the boy (two years after my first interview) there was still some trouble in retracting the prepuce, and the inguinal glands were *in statu quo ante*. What is of special interest in the case, I find it recorded in my private notebook that the boy had a chronic inflammation of the nose, which I then considered to be of "tubercular" origin.

For three years I saw nothing more of the boy. My advice was

then sought in connection with a large cluster of infected glands which stretched nearly the entire length of Poupart's ligament, and which also had begun to extend down the middle of the base of Scarpa's triangle. The original tumour was the size of a pigeon's egg, and of those glands which were secondarily infected from it the largest, which were those nearest to that tumour, were of the size of the top of one's finger. There was no tenderness about the glands, and they were still quite movable. Through a free incision over them they were brought out singly and in groups, by the use of fingers and forceps; but I had to take up the knife a second time in order to expose a gland situated beneath that part of the fascia lata which formed the lowest boundary of the saphenous opening. This last gland lay, indeed, within the sheath of the femoral vessels, and of these vessels, during the enucleation, we had a view, which, in the circumstances, was neither anticipated nor desired.

Though I have not seen the boy since the day of the operation, I hear from Dr. Foster, of Hitchin, who has been looking after him, that his general health has improved, and that he is now quite sound.

After the removal of the glands, several of the largest of them on being cut across showed caseation of their central parts. This caseation is but a fatty degeneration of the inflammatory products, which, being extra-vascular, are specially prone to retrogressive change. Caseation is met with in other morbid products than those of tubercle, notably in the gummata; nevertheless, its presence in a lymphatic gland which has been the subject of a low and chronic form of inflammation is strongly confirmatory of its tubercular nature. Sometimes, no doubt, the caseation goes on so quietly and happily that the soft and fluid parts of the product are absorbed whilst the solid parts remain as a calcareous and harmless in mass. Not frequently one encounters gritty concretions of this nature amongst the lymphatic glands at the root of the lung when making a post-mortem examination, but strumous

inflammation of the glands in the neck rarely, very rarely takes this course. As already remarked, the products are extra-vascular, and thus it is almost beyond the power of the blood-vessels to carry them off. For the same reason they are incapable of organisation. The larger that they become the nearer approaches the period of their almost inevitable bankruptcy—a condition which, as might be expected, brings ruin, or, at any rate, disturbance to the tissues which are in association with it.

Another case that gave anxiety, not only during the operation, but (on account of the heredity of the child) before and after it, was one in which a tubercular mass of gland, or glands, had to be cleared from behind the origin of the right sterno-mastoid. I speak of it as "tubercular," for the child's mother had succumbed to rapid phthisis only a short while previously, and the child had evidently, judging both from the general and local condition, inherited the diathesis. The glandular mass had partially broken down, and we feared lest there should be a secondary implication of the glands in the anterior mediastinum.

We reached it by working through the interval between the sternal and clavicular heads of the muscle, and, long before we had finished scraping out the *débris*, we had become conscious of the fact that we were trespassing in an extremely picturesque anatomical neighbourhood; it was where the internal jugular vein was sloping gently away from the root of the common carotid artery, to descend over the front of the subclavian artery, and where the trunk of the vagus was coming a little forward from between the carotid and jugular to cross over the very beginning of the subclavian trunk.

When he is operating in a dangerous working such as this, the surgeon is apt to think of, and also to sympathise with, Frère Jacques, who, being a successful and secure lithotomist so long as he was ignorant of the anatomy of the perineum, sacrificed his happiness and his success to the acquisition of a knowledge ot the arrangement of the pelvic outlet.

The case to which I refer did well; the general health began to improve immediately after the cavity had been cleared out, and when I saw the child a few weeks ago, she was quite well and strong, and the scar had contracted to insignificant proportions.

My opinion is, and of course it is but an opinion, that if this case had been allowed to run its own tedious and unsatisfactory course, the child would have fallen a victim to general tuberculosis.

Sarcomatous Glands.

Towards the middle of last July, an infant of nine months was admitted to the Children's Hospital, Great Ormond Street,

Fig. 1.

the notes of whose case I briefly transcribe from the report taken by the registrar, Dr. R. Priestley:—There was a large tumour occupying both the anterior and posterior triangles of the neck on the right side. It reached from the lobule of the ear to the clavicle and the episternal notch, and, laterally, from the median line of the neck to the anterior border of the trapezius. The tumour was of the size of a large orange, which, considering the area of the infant's neck, was enormous. It had a semi-solid feel;

it did not implicate the skin, and it was freely movable. It was evidently situated beneath the sterno-mastoid, taking there its origin in the lymphatic glands. From its great size and rapidity of growth, it was suspected that it was more likely to be of malignant than of tubercular origin, but in any case its prompt removal seemed to be indicated.

Accordingly, on July 24th, the tumour was exposed by a free incision and enucleated from its bed, chiefly by using the finger and the director. But on proceeding to separate it from its anterior connections, the common carotid artery and the pneumogastric nerve were seen to occupy a deep groove in the substance, whilst the internal jugular vein was stretched over its surface a little further back. The vein had inevitably to be sacrificed, and it was accordingly tied above and below; but when freeing the other two structures and dislodging them from their groove in the tumour, the pneumogastric nerve evinced its resentment by setting up an alarming attack of dyspnœa, which at one time threatened a fatal result. The operation being completed, the wound was closed with a continuous suture, and the infant was put back in his cot with his head between sand-bags. Sections of the tumour demonstrated its sarcomatous nature.

After the operation, the child's pulse for three days ran at 180, but the temperature only once reached 100°; the wound healed completely, and the infant was taken home in a fair state of health in less than a month after the operation. (I have recently heard that it is going on perfectly satisfactorily.)

Some curious physiological phenomena were manifested after the child was removed from the theatre. In the first place there was paralysis of the right facial nerve (the side of the operation), the mouth being drawn over to the left side. Ptosis occurred upon the right side. There was profuse sweating of the left side of the face, the moisture extending exactly to the middle line; the pupil of the left side was constantly dilated.

I cannot attempt to reconcile these statements: I can only

say that the phenomena were observed day after day by Mr. Bays, the house-surgeon, by Dr. Priestley and others besides myself, and even at the time of the child being taken home, some of them still remained, though in a very slight degree.

I have recorded this case for several reasons: to show that one cannot always be sure of the nature of a glandular tumour of a child's neck until it is taken out; that even a malignant mass of glands may be successfully removed provided the operation be not delayed; that a free incision is of great advantage to the operator, in that it enables him to recognise the structures which he encounters, and that even from an extremely serious operation of enucleation a child may make a prompt and complete recovery.

In certain cases no treatment short of extensive operation can possibly prove of avail, and though the shock attending it may be so great as to cause it to end fatally, still, as the inevitable alternative to the operation is death, the most serious risk should be unhesitatingly accepted and the operation undertaken.

Congenital Cystic Hygroma.

Having occupied so much time with the consideration of definite tumours which can and should be removed from the neck, I would call attention to a peculiarly interesting class of indefinite tumours of that region which cannot be removed, and which, though sometimes of most serious importance, generally disappear spontaneously, or, at the most, demand but little interference on the part of the surgeon. I allude to the congenital cystic hygromata. These tumours receive, as a rule, only a slight recognition in works on general surgery, so slight, indeed, that if it attracted the attention of the student, it would certainly fail to make such an impression on him that he would be able to identify the tumour on the first occasion of his meeting it in actual practice.

That the hygromata are composed of dilated lymph-spaces there is no doubt. These vary in size from cysts just visible to

the naked eye to others of the size of a hen's egg, or of an orange. They are lined with a layer of endothelial cells con-

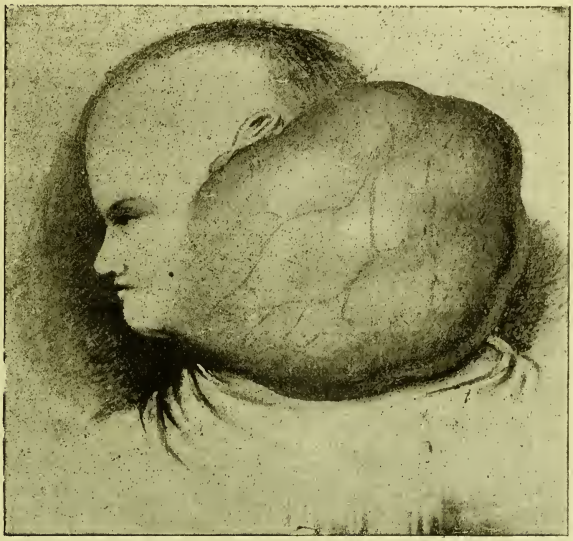


Fig. 2.

Congenital Cystic Hygroma from a Child who was under the care of Mr. Marsh.

tinuous with those of the lymphatics. As a rule, the hygroma consists of a great number of small cysts rather than of a few large ones. It is the latter arrangement which gives rise to the so-called "hydrocele of the neck." On their being evacuated, however, the swelling does not entirely disappear, for, as a rule, puncture of the largest of the cysts causes others to assert their prominence, and when several of them have been emptied of their yellowish, or blood-stained fluid, there is much growth left with which the operatoris unable to deal.

Why an infant should come into the world with so ill-organised

a lymphatic system, one can no more say than one can explain how it is that, in another child, the venous capillaries should be dilating themselves into nævoid tumours. This comparison is, I think, not inapt, for there is a close resemblance between a nævus and an hygroma; in the latter case the walls of the containing vessels are so thin and unresisting that they are capable of enormous dilatation. Sometimes, indeed, the lymphatics and the blood-vessels are dilated at the same time, as is shown in the case of an enormous hygroma of the chest which was under the care

Fig. 3.

of Mr. Thomas Smith. The dark colour upon the surface shows the capillary nævoid growth.

I have known a nævoid growth also in association with an hygroma of the floor of the mouth. Whether such associations as these are accidental or developmental I cannot say, but I apprehend that they are developmental.

In one respect hygroma is like malignant disease: it ignores anatomical confines. Thus, it traverses the deep fascia and involves

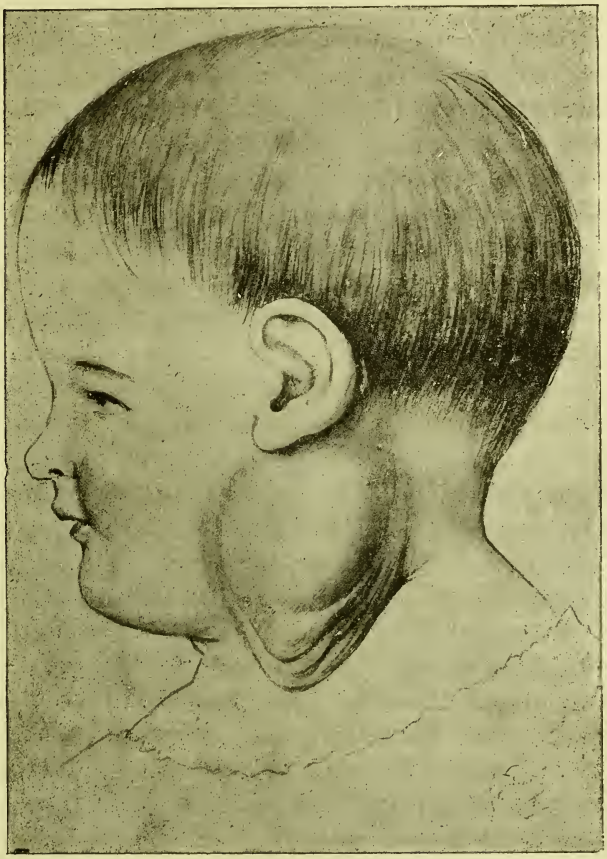


Fig. 4.
Congenital Cystic Hygroma undergoing Atrophy. (See St. Bartholomew's Hospital Reports, 1866.)

the skin on one side of it, and the muscles, or intermuscular spaces, and the very deepest planes of connective tissue upon the

other. Not infrequently lymphatic glands are entangled in its loose meshes. Such a tumour has a strange feel, partly cystic, partly solid, the solid portions being round and nodular.

Though hygromata are usually found in the neighbourhood of the neck, face, and arm-pit, still they may occur upon the trunk. Very rarely, however, are they found upon the extremities; still the surgeon must be prepared for encountering them there. Thus, in November, 1882, I showed a child before a meeting of this Society with the remains of an hygroma upon the arm; the tumour had been for three years under my observation. At first its cystic nature had been very evident, but I had been content to watch it without offering to interfere; and when I brought the child forward the tumour had dwindled down into a diffuse mass, which greatly resembled a lipoma, the fluid part of the tumour having undergone spontaneous absorption.

I have also seen one of these growths undergoing spontaneous cure upon the thigh.

We have recently had a child in the Great Ormond Street Hospital with an hygroma of the size of the long half of a hen's egg upon the inner side of the arm, just above the elbow. The lump had attracted attention at birth, being then of the size of a large walnut. Referring to the notes taken by the clinical clerk, Miss Farrar, I find the tumour thus described: "It is about the size of half an orange. Its outline is ill-defined, and it is soft to the feel without actually fluctuating; some portions of it seem to be firmer than others, and it is not distinctly lobulated. It is almost translucent, and the skin is slightly puckered over it."

This description is excellent, and I apprehend that it conveys the impression that the growth was actually a fatty tumour. Indeed, most of those who saw and critically examined it arrived at the conclusion that it was a lipoma; and as an hygroma is in error more often taken for a lipoma than for anything else, I will endeavour to show in what way the correct diagnosis could have been reached. I will place on one side the fact that lipomata

are rarely found at birth, because, upon the other hand, hygroma is very rarely met with upon an extremity. A fatty tumour and an hygroma are both apt to possess an indefinite border and an obscure sense of fluctuation; they are painless, and are covered by apparently healthy skin, which shows a characteristic dimpling or puckering on being gently pinched up between the finger and thumb. But, and here is the differential feature, in the case of a fatty tumour the dimpling skin can always be raised in places and isolated from the surface of the subjacent mass, whereas with an hygroma it cannot be so raised, for the simple reason that the dilated lymph-spaces of the tumour spread into and blend with similar dilatations in the deep layer of the skin itself.

As in the particular case which I am recording the tumour was neither large nor diffuse, Mr. Bays, the house-surgeon, with my consent, proceeded to remove it with the scalpel, but the dissection proved, as is invariably the case in these tumours, difficult and disappointing, for cyst after cyst gave away; and when at last the wreck of the tumour was detached, it looked like a shapeless piece of ragged sponge, and was of insignificant size. I find it noted that some of the cysts were adjudged to be of the size of peas or hazel nuts. Two days after the operation the wound, which had been closed by sutures, was gaping, and the arm was covered with an erysipelatous blush; the wound became unhealthy in appearance, and on the eleventh evening the temperature was at 105·3°. After this the local excitement subsided, and the wound slowly healed.

I well remember a similar experience of my own when, a good many years ago, I ventured to excise one of these tumours from the lateral aspect of a child's chest; the growth was rounded and superficial, and almost invited surgical attack. But when the lateral incisions had been made, the hygroma was found to be spreading to an unsuspected depth and distance, and the dissection had to be carried underneath the costal attachment of the latissimus dorsi before the operation could be brought to a satis-

factory conclusion. In this child also the wound took an unhealthy appearance, and healed but slowly. Indeed, my experience is that these tumours are peculiarly intolerant of interference, and that they, and the tissues with which they are

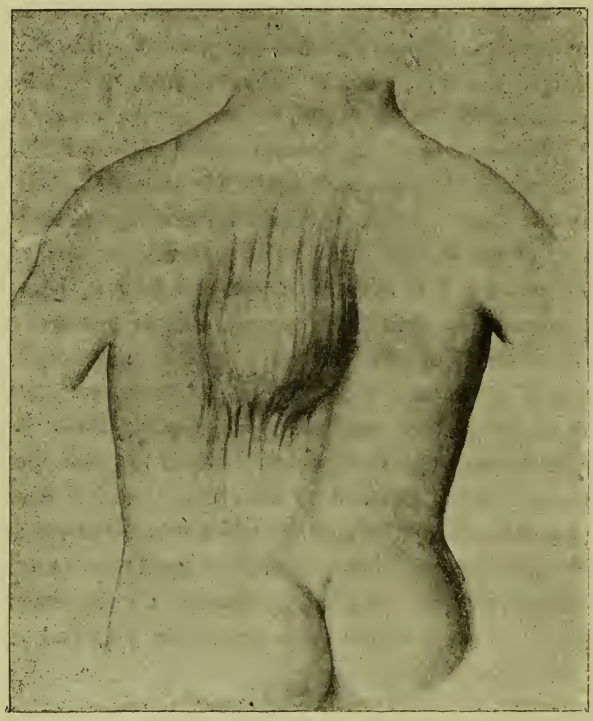


Fig. 5.
Hygroma of Back, from a Child under the care of Mr. Thomas Smith.

continuous, are always ready to pick a quarrel, as it were, with a surgical instrument, and that when this opportunity is denied them, so unstable is their equilibrium, they spontaneously rouse themselves into a condition of inflammatory excitement.

Possibly some of us may have met with *individuals* of a somewhat similar temperament, with whom it is at times difficult to get on, and who, taking offence at some slight or purely imaginary grievance, break out in an uncontrollable fit of anger. Then, the storm being over, the atmosphere is cleared and the individual is a better friend than ever.

The surgeon must always be prepared for an hygromatous tumour becoming suddenly increased in size, hot, and tender; indeed, he will gladly welcome the attack of inflammation, provided that it does not assume extreme proportions, for he may with confidence expect that, on its substance, the tumour will steadily decrease, and, in due course, become effaced. Why the inflammation should so generally cause the subsidence of the tumour one cannot say. Neither, on the other hand, can one explain how it is that the attack of inflammation which he excites in the dropsical tunica vaginalis by the introduction of some irritating material, usually cures a scrotal hydrocele. The analogy is sound, for the scrotal hydrocele is a dropsical effusion into a large lymph-space—the tunica vaginalis—whilst the hygroma is a collection in small lymph-spaces.

My belief is that it is only a matter of time when the critical inflammation attacks the hygromatous mass, for though I have seen dozens of these cases of dilated lymph-spaces in infants and children, I have never (if my memory serve me) met with one after puberty. Certainly if the tumour be not greatly interfered with it very rarely entails death.

But it is by no means essential that obliteration of the cystic mass be preceded by inflammation, for the serum may undergo a quiet absorption, just as does the fluid which is so frequently found in the funicular process of the peritoneum, or in the tunica vaginalis in little children. These hydroceles rarely need any treatment more serious than tapping, and that, I think, is all that should ever be undertaken in the case of the cystic hygromata.

One case which I will briefly report is that of a boy of five

months, who came under my care at the Children's Hospital for hygroma of each clavicular region. In the subclavian triangle on each side was a soft and indefinite tumour of the size of a walnut; these tumours, extending downwards beneath the collar-bones, were continuous with a diffuse growth in each axilla. There was neither pain nor any inconvenience about the tumours, and on our explaining to the mother that no active treatment could be undertaken with regard to them, she arranged to bring up the infant from time to time, for she lived at a considerable distance from the hospital. When I next saw the child, after an interval of three weeks, the upper portions of the tumours had almost joined across the front of the root of the neck. The growth had, moreover, extended deeply towards the middle line, rendering deglutition difficult, and causing œdema of the eyelids by pressing upon the internal jugular veins.

The masses in the subclavian regions so obstructed the venous return from the upper extremities that the hands and arms were greatly swollen. Though translucency showed that the tumours contained a large amount of fluid, treatment by puncture did not seem to be suggested, as there were no definite cysts with which to deal, and as we were apprenensive lest any interference on our part should set up inflammation in the unstable tissue, and determine a fatal compression of the trachea or the large blood-vessels.

. . . . . .

A week later the mother came up from the country to say that the child had died on the previous day. She said, moreover, that the tumours had enormously increased in size during the five days which had elapsed since our seeing the child, and that, bulging over the front of the neck, they had probably caused death by pressing upon the windpipe, because, as they grew, the child's breathing became more and more distressed, and he seemed to be slowly suffocated. No *post-mortem* examination was made.

The photograph (Fig. 6) is that of an infant of eighteen months, whom I recently saw with Dr. Fredk. Evans, of Cardiff. The hygroma, which had been noticed directly after

Fig. 6.

birth, had begun to grow six months later. It will be noticed that the growth extends across the median line of the front of the neck, but that, occupying the entire side of the neck, it reaches upward behind the pinna. Close examination of the upper part showed that it even invaded the lobule of the

ear. This is a very important clinical feature of the hygromata. I do not of course say that every cervical hygroma involves the lobule of the ear. But what I would insist upon is

Fig. 7.
The same Child five months later.

this, that there is no other form of cervical growth which trespasses upon the pinna without causing a discolouration of the surface, as a nævus would do, or without giving local and general signs of malignancy, as would a sarcoma.

Fig. 7 is another photograph of Dr. Evans's patient, taken five months later than the preceding one, and after many tappings of

Fig. 8.

the cysts. The child was in perfect health, and the tumour was steadily diminishing in size.

Fig. 8 is a drawing of an hygroma which invaded the pinna; it will be noticed that the lobule is greatly enlarged. The child was under the care of my colleague, Mr. Bernard Pitts, who has kindly lent me the sketch. This case was particularly interesting, in that the dilated lymph-spaces traversed the entire thickness of the neck, implicating the lobule of the ear without and the tonsil within.

The only other case of hygroma to which I need refer is that of a little girl whom I showed before this Society in November, 1882. Her case was extremely interesting and important. When the hygroma had first been detected, it appeared in the form of a large nævoid thickening below the tongue. Soon after this, small cysts began to form in the floor of the mouth, and the swelling was then taken for, and treated as, a ranula. Shortly afterwards the hygromatous infiltration extended through the floor of the mouth and appeared as a diffuse swelling down the side of the neck. Then a spontaneous attack of inflammation invaded the tumour, so that the trachea was pressed upon, and the infant's respiration was greatly embarrassed. The inflammation quickly subsided and in less than a year the side of the neck was almost normal. Shortly after this, however, the other side of the neck became occupied by a diffuse growth of a similar nature, but in due course this also underwent a quiet attack of inflammation, and then gradually disappeared. I have recently seen the child; she is quite well—without a trace of anything being wrong with the neck. (Fig. 9).

The tumour of hygroma is altogether different from another variety of "hydrocele of the neck," in which, during the process of development, one of the branchial clefts fails to be obliterated in its deeper part, but which, being closed in externally, gradually becomes distended with degenerate epithelium and with the fluid secretion of the included epiblast. This dermoid-cyst-hydrocele resembles an hygroma in that it probably first shows itself in early childhood, that it bulges upon the surface, and extends

deeply amongst the tissues of the neck, even to the pharynx or œsophagus, that it has a feel of fluctuation, and that it is painless. But it differs from an hygroma in that, like dermoid cysts

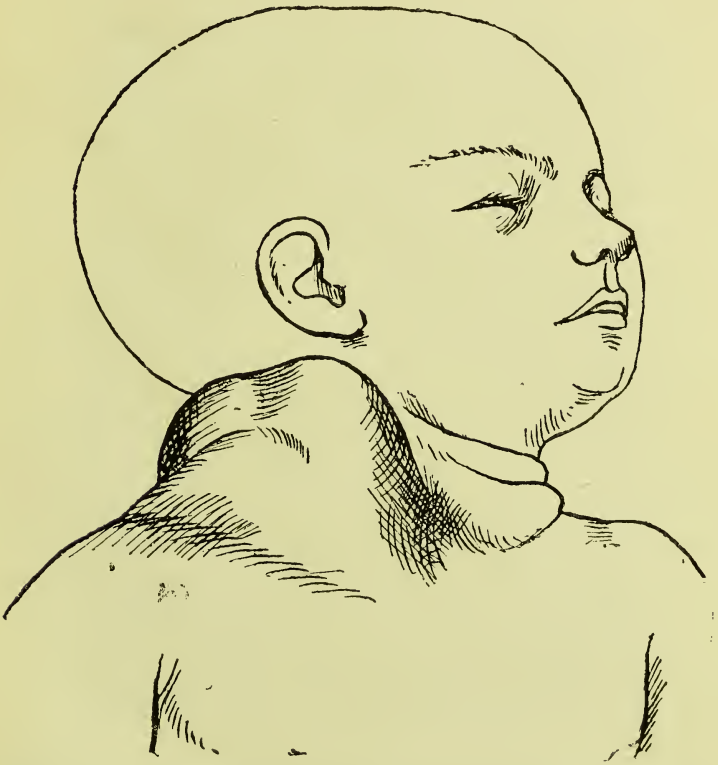


Fig. 9.—Hygroma of the Neck, which became obliterated in due course.

generally, it has a definite and rounded contour, and that it consists of a solitary cyst which, being evacuated, leaves the neck of normal appearance. Such a "hydrocele" sends no diffuse offshoots towards tongue or axilla, and though it may recur after tapping, a

complete and easy mastery over it may be obtained by incision and drainage. These two varieties of congenital cervical tumour must not be confused, and the better to effect this I would urge that the indefinite term, "hydrocele of the neck," be altogether discarded, the diffused tumour being called "hygroma," and the other a "dermoid cyst." The latter condition must be, however, extremely rare.*

It is sometimes said that congenital hygroma is especially apt to occur in imbecile children, forming in them a superficial, diffuse, and semi-fluctuating tumour above the collar-bone. It is true that in the case of sporadic cretinism a diffuse and fluid-like mass of tissue is often found at the root of the neck, and probably on both sides, but its nature is entirely distinct and different from that of hygroma, being a mucoid infiltration of the subcutaneous tissue due to the congenital absence of the thyroid gland.

Cases of sporadic cretinism—the myxœdema of childhood—are of sufficiently rare occurrence in England as to justify their being shown from time to time at meetings of the various medical societies. It is extremely interesting and important to know that the physical decrepitude, the mental imbecility, and the mucoid deposits which are associated with the absence of the thyroid, have been produced time and again in young monkeys by Professor Horsley, who, with that object in view, had removed the thyroid body and carefully watched the subsequent development and behaviour of the animals experimented upon.

The question is sometimes asked, "Are vivisection experiments justifiable?" My experience is that the well-meaning gentleman or lady, and especially the latter, who propounds it, is rarely satisfied with the answer given by the progressive surgeon. But surely the results which were obtained by Horsley in connection

* Reference on this matter may be made to a valuable paper in the "Proceedings" of the Medical Society of London, 1885, by Mr. J. H. Morgan.

with the physiology and surgery of the thyroid body should, of themselves, suffice as reply. A knowledge of the effect which was likely to be produced by the removal of a goitrous mass involv-

Fig. 10.
Case of Sporadic Cretinism, showing Diffuse Tumour at root of Neck.

ing the entire gland, from a young man who had been till then in the full enjoyment of health of mind, and, but for the cervical tumour, of body also, was of more value than many sparrows or

even apes, blessed though the latter may be by their descent, and ennobled as they may be by their descendants.

In these days of restless, active, and aggressive surgery, control-experiments upon living animals are not only "justifiable," but necessary. Necessary, I say, and not only for man himself, but for the greater happiness of the countless animals which toil and suffer in his service, for whose physical welfare the framers of our country's laws are always mindful, and for whom no one, I am sure, can have a more profound veneration than has the vivisector himself.

It may be that in due course experimental physiology will not only be able to explain the occurrence of hygromatous tumours, but also supply a simple method for their prompt and successful treatment; but in the meanwhile the practical surgeon must be content to wait. And, in doing so, he may, if he will, ponder over the Italian proverb which says that with patience and straw even medlars get ripe—*colla pazienza e colla paglia si maturano le nespole*,—and though the proverb is of far wider application in surgery than some of us would believe, it is remarkably applicable in the treatment of congenital cystic hygroma.

Hare-Lip.

The subject with which I desire now to deal is the treatment of certain congenital defects and deformities, beginning with hare-lip. I must leave on one side the subject of cleft palate, for though the operative treatment of this allied defect is undergoing considerable modification, especially as regards its adoption in infancy, still its discussion on this occasion would not, I think, be likely to attract very general interest.

I trust that by way of preface, I may be allowed to recall the fact that at a very early period of development the nasal and oral cavities are directly continuous, and that their separation is eventually effected by the junction in the middle line of the horizontal ingrowths of the maxillary processes; that the most anterior and

central part of the hard palate is developed on either side of the median line in the inter-maxillary bone, and that this, containing the incisor teeth, is an off-shoot from the fronto-nasal process,

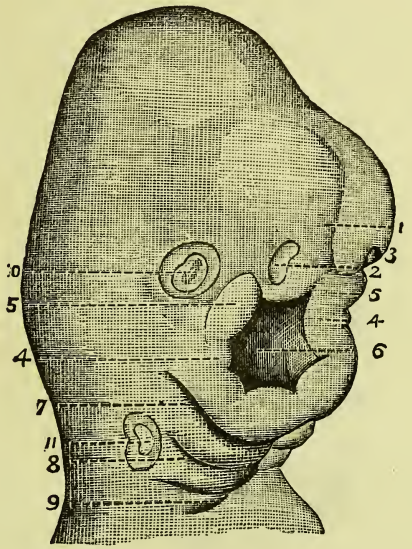


Fig. 11.

4. Inferior Maxillary Processes united in middle line.
5. Superior Maxillary Processes.
6. General Oro-nasal Cavity.
7, 8, 9. Second, third, and fourth Pharyngeal Arches. (From Gray's "Anatomy.")

which comprises also the septum of the nose and the median part of the upper lip; and, lastly, that this median part of the lip becomes, in due course, blended with the lateral parts of the lip, which are the integumental coverings of the maxillary processes before mentioned.

Thus, it is easy to understand how arrest of development may

give rise to a sagittal cleft of the soft and of the hinder part of the hard palate, or to one which, continuing forward, inclines outwards on one side, or on both sides of the intermaxillary bone.

Fig. 12.

From an Embryo of five weeks, after Ecker. 1, Superior Maxillary Plate; 2, Inferior Maxillary or Mandibular Plate; 3, Fronto-nasal Plate; 4, 4, Lateral Frontal Processes.

The bi-lateral palatine fissure is very apt to be associated with double hare-lip, in which case the intermaxillary bone may fail to arrive at its proper position, and, together with its prolabial

covering, may be content to occupy an isolated and conspicuous attachment at the tip of the nose.

Will the embryologist ever be able to tell us why development should thus be arrested, and, further, provide us with some means of effectually guarding the fœtus against it?

As is shown in these remarks, the fissure of the imperfectly developed lip must be at some distance from the middle line, namely, at the site at which the median process should blend with the lateral fold; still, in certain instances, the gap is found exactly in the middle of the lip. Such a case was recently ex-

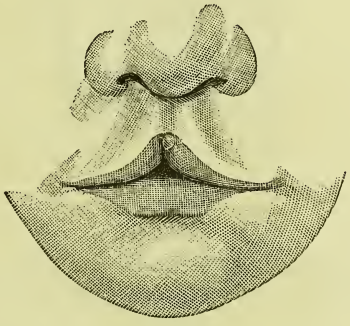


Fig. 13.
Mr. Pitts' case of Median Hare-lip.

hibited by my colleague, Mr. Bernard Pitts, at one of our clinical meetings. The cleft did not extend into the nostril; indeed, such an error would have been developmentally impossible, but it reached half way from the free border of the lip to the septum of the nose, as is well shown in the woodcut, Fig. 13.

In considering the embryology of the lip, it strikes one as strange that median hare-lip should be of such remarkable rarity, for though the central part of the lip is developed from the descending fronto-nasal process, that lappet, as shown both

by Ecker and His, is bifid, and if the interval between the two lateral tubercles should fail to be effaced, the median cleft is at once established. Some day a child will be exhibited, I have no doubt, who has lateral hare-lip associated with a median cleft, and I, personally, would greatly like to see it.

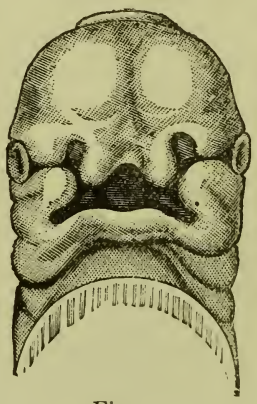


Fig. 14.
Notch in process descending to form Median part of Lip; a deepening of this Notch gives Median Hare-lip.

Mr. Pitts' case was the more interesting in that nature had confined her forgetfulness to the integumental part of the fronto-nasal process, the præmaxilla, the vertical plate of the ethmoid and the vomer being duly developed. There was a slight groove between the intermaxillary bones, but otherwise the bones were perfect.

Though we are at present unable to explain why development should so frequently miss the mark in connection with the formation of the lip and palate, I apprehend that we are now all agreed that maternal impressions have nothing whatever to do with the defect. It is very curious, however, to note what

a powerful influence heredity has in its causation. Here is a short family tree which was kindly prepared for me by Dr. Guthrie Caley, of Lingfield, in connection with a child whom he placed under my care for hare-lip :—

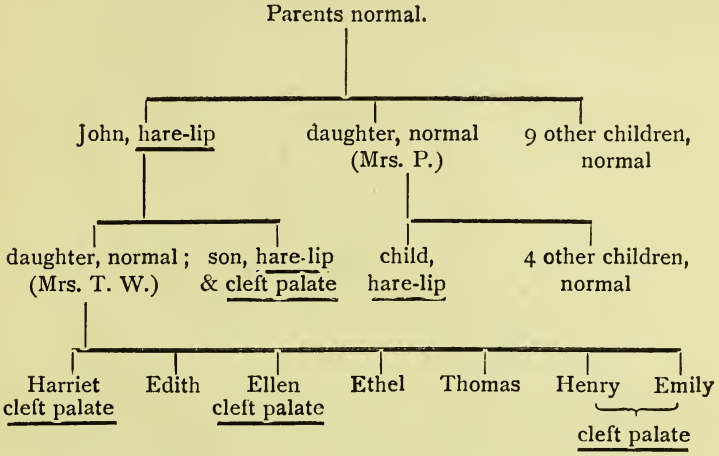


Fig. 15.
Failure of ingrowth of Maxillary Processes ; Palate widely cleft.

The subject of hereditary peculiarities is always an attractive one; and if each member of the community were able to take

that amount of intelligent interest in it which Francis Galton would desire, and then if some enthusiastic collective investigator, after the type of Prof. Humphry or Isambard Owen, could eventually examine and make a digest of the gross results, a valuable labour surely would be achieved.

Fig. 16.

Double Hare-lip; Præmaxillæ attached to tip of Nose. From a Child under the care of the Author in the Great Ormond Street Hospital.

I know members of one family in which the last inter-phalangeal joint of the little finger is permanently ankylosed, and of another in which a single white lock of hair is the peculiar heraldry. (I am not alluding, of course, to a solitary tuft of white hair left conspicuous on the forehead when all the rest has been dyed.)

As regards the time at which the operation of hare-lip should be undertaken, no hard and fast rule can be made; each child must be a rule for himself. If the cleft be slight, and do not materially interfere with sucking, the operation may be conveniently deferred until after the child is weaned. When unassociated with defective roof of mouth, the child will be enabled to take the breast on the fissure being closed, and in such cases the operation may be undertaken with advantage within even a few days of birth. Possibly at this very tender age the risk of

the patient suffering from the effects of hæmorrhage or shock are greater; but for the sake both of mother and child the defect should be remedied within the first few weeks if the general condition appear satisfactory. If, however, a defective palate coexist, the operation may be deferred for weeks or months, as the power of sucking could not be improved by any operation upon the lip only; strength will be gained by the delay. It is highly important to afford the infant the power of feeding

Fig. 17.
Intermaxillary Bones and Frolabium attached to tip of Nose, from a photograph.

from the mother's breast. The nurse who can produce a well-nourished infant with hare-lip and cleft palate deserves high praise; many of the infants perish from sickness, diarrhœa, and exhaustion.

Inasmuch as the operation which I am in the habit of employing in cases of hare-lip differs considerably from the operation usually described in our text-books, I propose taking this opportunity to explain it somewhat in detail. But, before doing so, I would remark that the surgeon must carefully assure himself that the child is in a fairly satisfactory state of health

when he is considering the advisability of operating, or else his handiwork will not improbably fail. Because of the labial fissure, the infant was unable to take the breast; his earliest days were therefore passed if not in absolute want, at least in a state which is far removed from hygienic perfection, and it is a matter of common experience that many such children perish in the early weeks or months of their existence, as already remarked, and chiefly because they cannot be properly fed.

So that each step of the operation may be fully described, I will give a detailed account of the treatment of an extreme case, such as that of which I have already given illustrations. I never saw a worse case of hare-lip than this; the cleft of the palate is wide and complete, and so great had been the developmental confusion, that the inter-maxillary bones were, together with the median piece of the upper lip, adhering to the tip of the nose. The vertical plate of the ethmoid had, moreover, far exceeded its proper limit, and was giving a firm support to the back of the displaced inter-maxillary bones, as is shown in Fig. 17.

The first question which the surgeon asks himself in a deformity of this sort is, "Can the inter-maxillary bones be used for filling the front of the palatine cleft after the superfluous bone has been removed from the nasal septum?" Of course, if the piece of bone can be so used, the subsequent operation upon the palatine fissure will thereby be much simplified. There are, however, two fallacies in connection with the thrusting back of the inter-maxillary bone;—unless it be pushed well home, it may exert a pressure against the line of operation in the new lip, and so obstruct prompt and complete union. Secondly, when thrust into the cleft, it may fail to take up a secure attachment, and may, as I have known happen, prevent that narrowing of the palatine fissure which a successful operation on the lip may be expected gradually to effect.

In this particular instance it was impossible to gain any ad-

vantage by preserving the inter-maxillary bones; so we removed the osseous tuft and a considerable amount of the advanced nasal septum; the sides of the prolabium were then trimmed off, so that the median strip might be laid down the front of the septum to form an integumental column between the nostrils.

The next step consisted in freeing the maxillary portions of the lip from the subjacent bone, and unless this be very thoroughly done it is impossible to get the vivified edges approximated across a wide gap without leaving so much tension upon the sutures as to spoil the chance of primary union.

When the labial flaps have been thus freely detached, the incisions are planned for obtaining the raw edges. By the old and

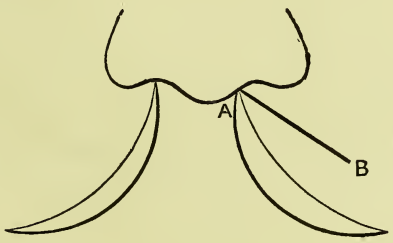


Fig. 18.

usual method of proceeding, this was effected by dissecting away the mucous membrane from each side of the gap. There are two objections to this plan: in the first place, it is needlessly wasteful of valuable tissue; and, secondly, when the raw surfaces are drawn together, a triangular notch permanently marks the spot where the vertical scar runs somewhat conspicuously on to the free border of the lip.

By the method of operating which I would recommend, the mucous membrane is economically, yet sufficiently peeled from one side of the cleft and from along a good deal of the free border of the same side of the lip, whilst from the other side a very bold

flap is cut which is tapered off to the top of the cleft, and is then brought across and laid along the denuded border of the lip upon the other side. Thus its thickest part forms a prolabium, whilst that which was previously the red, mucous border of the vertical cleft, becomes the free, horizontal border at the bottom of the obliterated fissure as well as of the opposite margin of the lip.

I would particularly insist on this, that the piece which should be brought across is not a mere paring of one border of the cleft, but a thick, wedge-shaped flap which is boldly tilted down, so as to leave a firm gap into which the opposite side of the lip, which has been already denuded in its vertical and horizontal borders, may be conveniently dove-tailed. Such a flap is far more likely to take union than is a thin paring, and, in addition, it should form a good prolabium. A great advantage of this, as, indeed, of any other flap-operation for hare-lip, is that the resulting and necessary scar does not traverse the mucous membrane in the line of the scar in the skin, but, being deflected outwards, may escape attention as it gradually tails off to the free border which it may reach at a slight distance from the corner of the mouth.

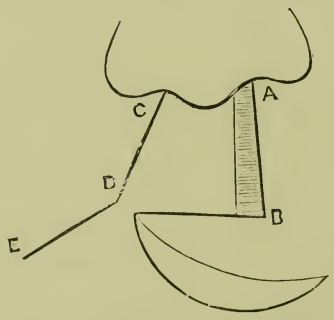


Fig. 19.

In the case under consideration the left side of the lip was deemed the more suitable for supplying the prolabial flap; the

incision was, therefore, made downwards and outwards in its substance, beginning right up in the nostril, as shown by the line A B, in Fig. 18.

The right side of the lip having had its mucous membrane carefully pared off, the lateral halves of the lip were to be brought forwards to the middle line; this could not have been done, however, unless their connections with the superior maxillæ had been thoroughly torn through, as already described. When the right half of the lip had been thus brought to the middle line, the incision, A B, which had been made obliquely into the lip, forthwith became vertical; the thick flap, which had previously been vertical, becoming horizontal, and ready for adjustment, so as to form the prolabium, and also the mucous border of the restored lip, as depicted in Fig. 19.

The right side of the lip being drawn inwards, some of its freshened border, C D, lay vertically in the middle line, whilst the rest of it, D E, formed a horizontal edge to which the deflected flap from the left half of the lip was then adjusted, the middle part

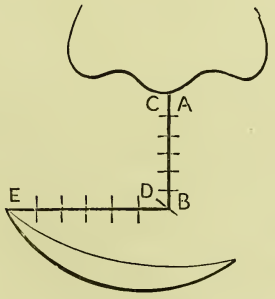


Fig. 20.

being so arranged as to fit into the retiring angle on the left side, as is shown at B, in Fig. 20.

As a rule, the flap is long enough to reach quite up to the labial

commissure of the side to which it is reflected, so that it saves time if the operator thinly peels off the mucous surface in the short horizontal part of the lip as well as in the vertical part. The pink membrane must be cleanly and entirely removed, for if any of it be left, primary union at that spot is impossible. It should be removed from before backwards from the entire thickness of the lip, so that the approximated raw surfaces may be thick and serviceable. Not a particle of *skin*, however, should be sacrificed.

The sketches by which I have endeavoured to show the scheme of the operation are purely diagrammatic. Each case requires some modification of the plan, and, adapting an old adage, "One must cut one's coat according to one's cloth." The sketches fail to show a peculiar puckering which often occurs, at B, when the vertical flap is brought across in the horizontal plane, which can be remedied by continuing the end of the incision, A B, a little outwards through the thickness of the lip.

Further, the sketches fail to show how conveniently the flap may be stretched outwards to the angle of the mouth.

The raw tip of the new columna nasi was then implanted at the upper end of the interval between the approximated labial folds, and there fixed by sutures of fine wire; the same material was also used for the stitches by which the lateral flaps were adjusted. These stitches were liberally applied, not only down the front of the lip, but also on the dental aspect, so as to prevent the child putting its tongue into the wound, and also to protect the raw edges from the irritation which would be likely to be set up by the intrusion of food. In a case in which this posterior set of stitches was omitted, I have seen the uniting medium between the halves of the lip of the mere thickness of the skin.

Certain sutures, both at the front and back, should be inserted more deeply than the rest, so as effectually to prevent the halves of the orbicularis, and the associated muscles, dragging upon the wound; but instead of wire, prepared horse-hair may be used for

adjusting the edges of the skin; horse-hair is very useful also for securing the transplanted flap along the opposite half of the lip.

Though I had been brought up in the belief that steel pins were not only convenient, but actually essential for the successful treatment of hare-lip if the defect were considerable, I have now for several years, given them up absolutely and entirely, even in operations upon the very worst cases, and I find that I get on much better without them. Not infrequently the spots at which they had traversed the skin were permanently marked by conspicuous dots of scar-tissue. The rows of sutures at the front and back of the lip render the use of the pins quite superfluous.

When the operation was completed, the new lip was, of necessity, comparatively small, and the lower lip looked extremely prominent; these conditions are inseparable from the operation upon a wide cleft. To remedy the unsightly want of proportion between the two lips, the only expedient was the levelling down of the prominent lower lip, and this was effected by the removal of a large wedged-shaped piece from the middle of it, the raw surfaces being carefully adjusted by sutures upon both the dermal and the mucous aspects. The effect of this proved highly satisfactory.

The subject was a male infant of eight months, when it was under operation at the beginning of last June, but in the following November he was again admitted in order that the bottom of the flap out of which the columna of the nose had been formed might be re-adjusted, as the tension upon it had been such as to prevent its taking a secure root.

I confess that I was very pleased with the experiment of the removal of the wedge-shape piece from the prominent lower lip. I will not presume to say that the idea is a novel one, or I may be favoured with a dozen strongly-worded notes to the effect that the plan has been resorted to in numberless bad cases since it was first recommended by some native Indian surgeon whose name it is difficult to spell, or by some Russian operator, whose

name it is difficult to pronounce. All that I will say, therefore, is that this was the first occasion on which I have practised it.

Fig. 21.
Case of Double Hare-lip from which the Inter-maxillary Bone had to be removed—showing prominence of Lower Lip (Holmes).

After the suturing, a scrap of dry lint, but without collodion, was laid upon each lip, and all the slack tissue which could be found in the cheeks was gathered up towards the middle line, and there fixed by a good-sized piece of waterproof strapping cut in the shape of an hour-glass.

On the morrow chloroform was administered, and the cheeks, having been well brought forward, and steadied by the finger and thumb of a nurse, the strapping was removed, and the sutures which were farthest from the borders of the lips were taken out, the wounds being cleaned, and dressed again as before. Next day a few more of the sutures were taken out from the front of the lip, lest, remaining too long, they should set up ulceration of the skin, and cause disfigurement; those sutures, however, which were upon

the dental aspect were allowed to find their own way out. Thus, within four or five days all the visible sutures were got away, those of horse hair which were at the tail-end of the flap and at the free border of the lip being last dealt with. For a fortnight or so after this the lip was still kept free from muscular disturbance by the use of strapping.

I do not know if Hainsby's cheek-truss is ever used now in hare-lip operations. I personally have never used it nor seen it applied. Improvements in the manufacture of adhesive strapping have rendered it obsolete, and I strongly suspect that it has gone the way of the tooth-key, the gorget, and the perineal-band, and that to the advantage of surgery.

When a wide oro-nasal fissure, such as this was, is partially closed by operation, the child's breathing is necessarily embarrassed for a short time afterwards, for whereas the airway had been unusually spacious, the child is subsequently obliged to breathe only through the nose and mouth. In this particular case a nurse had constantly to guard the child from suffocation, by gently separating the lips and depressing the tongue, until he had accustomed himself to the normal airway. In another similar case where this serious difficulty had arisen, it was successfully overcome by temporarily introducing a stiff piece of drainage-tube into each nostril.

There are few surgical disappointments, I think, more keen than that which a surgeon experiences when, after a carefully-planned and successfully accomplished plastic operation, the very first inspection shows him that everything is going wrong—that the flaps are failing to unite, and that every suture is freeing itself in a quiet ulceration :—

"The best-laid schemes o' mice an d men
Gang aft a-gley,
And lea'e us nought but grief and pai n,
For promised joy."

But when after a hare-lip operation the surgeon finds that all

has broken down, and that there is no chance of obtaining the smallest amount of primary union, he should still hope for a good result by granulation; and this he will be very likely to obtain by carefully adjusting and securing the loose flaps of the lip with pieces of strapping. In one case of this nature, greatly to the surprise and satisfaction of my house surgeon, he found what we might almost call a first-class result thus attend an operation which, at any time during the first week, threatened a complete and hopeless breakdown.

Coloboma of Eyelid.

Having spent a considerable time over the developmental errors of the lip, I would like to make a few remarks upon a defective formation of the upper eyelid, and would base my remarks upon a case which I have lately had under treatment in conjunction

Fig. 22.
Coloboma of Eyelid.

with Dr. Keser, Physician to the French Hospital. It was a case of that extremely interesting congenital defect, a vertical

fissure of the upper eyelid—coloboma; it is interesting not only because of its comparative rarity, but because its occurrence cannot yet be explained upon embryological grounds.

All that we know about the development of the lids is that after the eyeball is formed, two horizontal folds of integument begin to approach each other, one from above, the other from below, and that they meet at about the twelfth week. After their coming into mutual contact they are united by the epidermis growing across the fissure, whilst, more deeply, the edges are glued together by the secretion of the Meibomian glands. In kittens, as we well know, the eyelids adhere for a week or so after birth, but in the human subject the lids become separated some time before the end of intra-uterine life. Occasionally, however, it happens that the child is born with the lids still joined together. That defect is called congenital ankylo-blepharon, and is intelligible enough; so also is that defect in which the lids are too small to meet over the globe.

It may be that in certain cases Nature varies the method of development of the upper lid by providing two integumental processes instead of one, and that the experiment breaks down in that the two buds fail to unite in the vertical line, coloboma being produced. Thus the defect may be considered as analogous to an ordinary case of hare-lip. The woodcut (Fig. 22) upon the preceding page is made from a photograph which was kindly procured for me by Dr. Keser.

There is nothing of special interest in either the family history of the child of whom the photograph has been reproduced, nor in the account of the operation: the child was, I think, of Semitic descent, and the parents knew of no other like defect in the family. As regards the operation, chloroform was administered; an eyelid speculum was introduced, and the edges of the cleft were pared and then carefully adjusted by horse-hair sutures, some of which were passed through the tarsal cartilage. Primary union occurred, and except that the palpebral fissure is at present

somewhat deficient in length, the eyelid appears in no way remarkable.

The suggestion which I have made to the effect that in certain

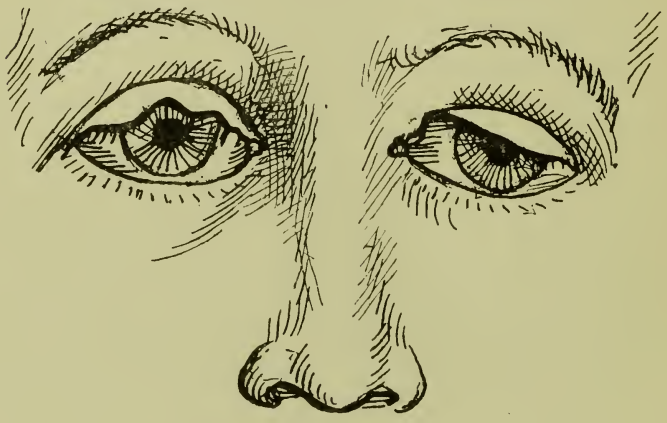


Fig. 23.
Irregular Development of the Eye-lids.

cases the lid may be developed from more than one integumental fold, derives not only support, but, I think, actual proof, from a clinical report of a case which has been kindly supplied me, together with a sketch, by Mr. Hulke. The case was that of a child of nine years, whose left upper eyelid bore a vertical notch towards its inner end, whilst the right lid was fissured in two places. Thus an attempt must have been made to shape out a lid by at least three integumental folds instead of one fold. The experiment proved a failure, which, however, Mr. Hulke completely remedied, I understand, by a plastic operation. An interesting fact in connection with this case is that the free border of each of these integumental nodules bore a few cilia.

Dermoid Cysts.

Before alluding to the sebaceous cysts which are so often met with upon the scalp and face of children, I hope that I

may be pardoned if I recall attention to some elementary facts in connection with the subject of Development; namely, to the existence of the three blastodermic layers, from the intermediate one of which (the mesoblast) are formed the deeper part of the skin, the muscles, bones, and blood-vessels. The superficial layer, or epiblast, is that from which, so far as this part of my subject is concerned, the cuticular covering of the body and the lining of the mouth are developed. (The third layer, the hypoblast, has no

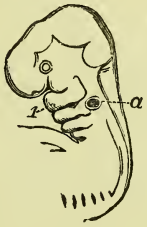


Fig. 24.
Embryo of four weeks, showing the Pharyngeal Clefts and Arches.
1, Mandibular Arch; *a*, Auditory Vesicle.
(From Quain's "Anatomy.")

concern with the development of the face.) On figure 24, is shown the stage to which the formation has advanced at the fourth week of pregnancy, at which time, if there be any shadow of truth in the theory of the dependence of congenital defects upon longings, shocks, or frights on the part of the mother, the subjective influence shouid be brought to bear. But at this early date few women, I apprehend, have realised the fact of their being certainly pregnant, and at the very beginning of the third month of gestation (ninth week) the fissures about the orbit, nose, and mouth have been effaced, and the embryo, who, by-the-by, has only just made up its mind as to which sex it will join, is already beginning to assume, though, as it were, in a rough sketch, a definite facial expression, Fig. 25.

Therefore, at a later period than this no maternal impression, however severe, could have the least effect—what is done cannot be undone.

Fig. 25.
Human Fœtus of nine weeks, the features being roughly formed. (From Quain's "Anatomy.")

I am given to understand that there are members of our profession who are making diligent inquiries into the theory of

Fig. 26.
Embryo of about six weeks. 1. Mandibular arch. 1'. First Pharyngeal cleft. The second cleft is still visible, but the third and fourth clefts are effaced. (From Quain's "Anatomy.")

"maternal impressions"; if only they were associated in their nebular investigations on the lines of the members of the Society

for Psychical Research, they might conclude their labours by establishing the theory upon a sound embryological basis, or by relegating it for ever to the limbo of old wives' fables. Are they still collecting? or are they now collating, or, perchance, concluding?

Fig. 27.
Example of Orbital Cleft.

Referring again to Fig. 12, it will be seen that between the lateral frontal plate from which the ala of the nose is developed and the superior maxillary plate, from which the lateral part of the lip is formed, there is a fissure running obliquely upwards and outwards towards the eye. It is called the orbital cleft, and it is effaced in due course by the blending of the frontal and maxillary plates; but, nevertheless, the deep part of the groove always remains to constitute the lachrymal canals and the nasal ducts.

In very rare instances the superficial part of this cleft fails to be obliterated. I have never met with an instance of this unsightly defect, but our old friend Francis Mason referred us to an

example of it in his Lettsomian Lecture, twelve years ago, and of this Mrs. Mason has kindly lent me a woodcut, Fig. 27.

It is well that from time to time our attention should be directed to sketches which are illustrative of developmental defects, in order that we may have the satisfaction of being able at once to account for congenital blemishes, whilst the mother and monthly nurse are elaborating a theory of their causation upon a less scientific basis, which, though romantic, is ingenious, and though fallacious, generally plausible.

In the ordinary course of events the obliteration of the superficial part of the orbital fissure takes place without interruption or observation, but every now and then a little piece of the epiblast becomes detached and belated, and unhappily locked in the depths of the closing fissure, like a fly in a piece of amber. Unlike the fly, however, it preserves its vitality, and behaves just as any other piece of epiblast behaves in the ordinary situation. That is to say, it proliferates epidermal scales, but locked within the juicy tissues these remain soft and succulent, or undergo fatty degeneration, and so produce a pultaceous mass. Sometimes the isolated scrap expends its energy in growing hair, which it carefully coils up in its interior.

Such is the nature and early history of the dermoid cyst which is not infrequently found at the inner corner of the orbit, and which, unless removed, would probably continue to grow through puberty and persist indefinitely.

Case.—In the middle of last July a boy of eleven was admitted to the Children's Hospital with a tumour of this sort at the side of the root of the nose; it had been noticed since birth, and was of the size and shape of a bean; it was not adherent to the subjacent bone, and the skin was freely moveable over it. Doubtless when the infant was at the mother's breast she set herself to evolve a theory by which she might account for the presence of the tumour, for she volunteered a circumstantial story to our Registrar of her being shocked in the seventh month of her pregnancy by

the sight of a man with some outgrowth upon his nose. This statement was duly taken down in writing for just as much as it was worth, but that shock came four or five months too late to interfere with the closure of the orbital cleft. A far more important record in connection with this case is that "the tumour seemed to increase when the child cried." After considerable circumspection the tumour was dissected out, when it was found to contain nothing but sebaceous matter.

I report this case in order that I may have the opportunity of recalling attention to certain tumours at the root of the nose, and that I may draw a distinction between them and the simple but interesting orbital dermoids.

Fig. 28 represents one of those important tumours which, being due to the protrusion of a pouch of dura mater through an unenclosed suture at the top, or upper part of the side, of the

Fig. 28.
Anterior Meningocele.

nasal process of the superior maxilla, are called meningoceles. Sometimes the meningocele is quite small, and containing little or none of the cerebro-spinal fluid, very closely resembles a dermoid cyst; but if, under a misapprehension, its extirpation were effected or attempted, the child might promptly fall a victim to fatal meningitis.

Sometimes the excursus of the intra-cranial structures is of

very considerable size, and, comprising not only the membranes of the brain, but some of the anterior lobe itself, constitutes a fronto-nasal tumour, the nature of which could be overlooked only by him who was at the same time deficient as regards the faculty of observation, and ignorant of the rudiments of embryology.

There is a third variety of tumour at the root of a child's nose with which the dermoid cyst may be confused, that is, a subcutaneous circumscribed nævus; and if there be a good deal of fibrous tissue associated with the dilated blood-vessels, it may be at first well-nigh impossible to make the diagnosis sure. Fortunately, however, it is by no means essential that a sure and certain diagnosis should be made; for the great point is to leave such tumour alone until its nature is clearly evinced, and its treatment imperatively demanded; meddlesome surgery is always apt to entail complications and anxiety, and especially so if pursued in an inquiring and speculative spirit amongst children.

Supposing that the tumour be a nævus, it may, like a meningocele, grow larger when the child cries; but, provided it be not extending by peripheral growth, it may safely be left alone and allowed to undergo spontaneous obliteration. On the other hand, if the nævus be enlarging, it is sure to reveal its nature by invading the skin, when it may be promptly dealt with by electrolysis or excision.

To return to the differentiation of a dermoid cyst from an anterior meningocele; it may be expected that the rigid margin of the cranial aperture might declare the nature of the meningocele; yes, but unfortunately the edge of bone is deeply placed, obscured by the tumour, and rarely available for diagnostic purposes. Then, as I shall describe more fully later on, a dermoid cyst is often imbedded in bone, in which case it is firmly and deeply rooted, and altogether indistinguishable from a meningocele.

Here, again, the Italian proverb quoted at the end of the first Lecture (p. 34) is highly applicable—a little more patience is re-

quired. If the tumour be a meningocele it will either grow larger or smaller; if smaller, no treatment would be necessary, for it would in time completely shrivel up; if larger, its nature would be obvious, and its treatment shown to be impracticable. The dermoid cyst would, in all probability, grow larger in slow degree; it would remain firm and rounded; and, unless imbedded in the bone, would be more or less moveable; then the sooner that it is dissected out the better.

I have known of a meningocele which, instead of protruding at the fronto-nasal region, had escaped through the suture between the orbital plate of the frontal bone and the cribriform plate of the ethmoid, where its appearance so closely resembled that of a nasal polypus, that its removal was attempted with a pair of forceps, a proceeding which, unfortunately, entailed a fatal attack of meningitis.

But a dermoid cyst upon a child's scalp, though it contains sebaceous matter, is altogether different from the sebaceous cyst, or wen, which occurs upon the head of the adult. In the first place it is subcutaneous; the skin which covers it is normal, not only in appearance but in thickness, and it can be easily moved over the tumour. It is, in my experience, usually situated beneath the occipito-frontalis, and, when imbedded in the bone, and tightly filled with epithelial *débris* and sebaceous matter, it is sometimes so hard and incompressible as to be mistaken for an exostosis.

But a dermoid cyst may have firm intra-cranial connections. Thus, in the sixth volume of the "Transactions of the Pathological Society," Dr. Ogle described a dermoid cyst which had gone so far astray as to form an attachment to the inner surface of the dura mater at the torcular Herophili—actually pushing aside the venous sinus. Within the cyst a lock of hair had curled itself up in a bed of sebaceous matter and epithelial cells. Dr. Ogle's opinion was that the cyst had been drawn down from the depths of the scalp by inflammatory adhesions; but, regarding his interesting clinical report in the light which the science of

development now sheds, his theory of causation is evidently quite superfluous.

If the tumour be placed over the anterior fontanelle (a favourite situation), its removal must evidently be delayed until ossification is complete, after which it should be cleanly dissected out; but this little operation is by no means always an easy one. Nothing short of the ablation of the entire tumour should suffice; for if the cyst be merely laid open and scraped out, some of its secreting surface may escape obliteration, and, recovering its vitality and energy after the operation, may become the germ from which a new dermoid cyst may grow.

It has been suggested that sebaceous tumours of the scalp may successfully be treated by the introduction of a small fragment of nitrate of silver into the interior, through a wound made by a tenotomy knife. I have no experience of the method, nor, after what I have heard of it, do I desire it, for in one case in which it was adopted it was followed by a serious attack of erysipelas of the scalp. Neither would I advise that an experimental attempt at removal by the injection of ether be undertaken. If the tumour must be taken away, let it be thoroughly done in a workmanlike manner by scalpel and forceps; and in these days of aseptic surgery it will not greatly matter if, in drawing out the deepest part of the tumour, an attachment with even the dura mater have to be severed. When about to attack a dermoid cyst in the median line of the skull—where it is especially likely to be found—it must be remembered that the bones are thin, and that the large venous sinus is not far off.

Mr. Bland Sutton, in his valuable and suggestive Hunterian Lectures, gives an excellent account of these cysts, and of their fondness for the region of the anterior fontanelle, reminding us that early in embryonic life the dura mater and skin are in contact, and that though the growth of the sides and vault of the skull soon causes a separation of these layers in their greatest part, the scalp and the fibrous covering of the brain remain in

actual contact along the sinuses for a year or more after birth, and especially so at the anterior fontanelle and at the region of the

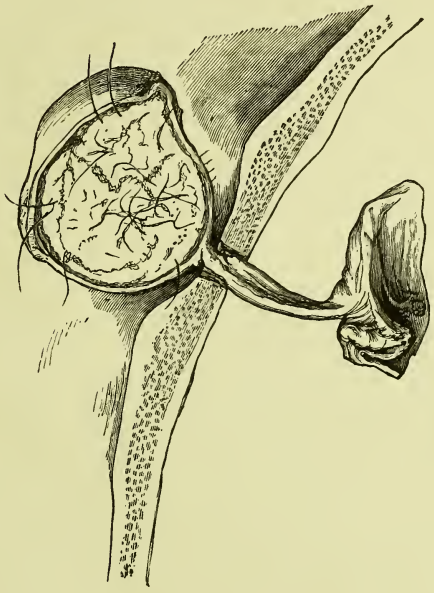


Fig. 29.

torcular. "Should the skin be imperfectly separated, or, indeed, a portion remain persistently adherent to the dura, it would act precisely as a tumour-germ, and give rise to a dermoid cyst. Such a piece of skin may retain its old attachment to the dura, and its pedicle becoming surrounded by bone, the cyst resulting from it would lie outside the bone, but be lodged in a depression on its surface with an aperture transmitting its pedicle." He also gives an illustration which, through his kindness, I am enabled to show herewith, of a dermoid cyst whose pedicle traversed the skull-wall and was found attached to the dura mater. The illustration is

important also in that it shows how the presence of the firm tumour prevented the proper formation of the bone between it and the dura mater ; for this, no doubt, is the correct explanation of the thinness of the skull beneath the cyst—it is not that the pressure of the cyst produced atrophy of already formed bone.

Altogether, the dermoid cysts which are so commonly found in children, whether on the scalp, face, neck or trunk, constitute an extremely attractive family group, and they surely are fortunate in having found, as their most recent biographer, so skilful an observer, and so ingenious an exponent as our friend Mr. Sutton.

Congenital Tumours of the Sterno-Mastoid.

Taking leave of the dermoid cysts, I would like to direct special attention to an important class of tumours, which are met with only during infancy, and, I might add, only during early infancy. They are the hard, and not very tender lumps which are found shortly after birth in the sheath of the sterno-mastoid muscle. Mr. Bryant referred to them in the Lettsomian Lectures of 1863 ; indeed, he was one of the very first surgeons to interest himself in their clinical history. Their true pathological nature was, however, imperfectly understood at that time for the simple reason that no opportunity had occurred of examining them post-mortem. But in the year 1874, Dr. Frederick Taylor published in the 26th volume of the " Transactions of the Pathological Society " (p. 224) a precise account of the examination after death of one of these interesting tumours. He happened to have obtained it from a breechling who had died of congenital syphilis, but there was nothing in the microscopic appearance of the tumour to show that it was the result of the hereditary taint. On the contrary, there was no cell-growth in it ; it was composed of white fibrous elements, and scattered through the mass were torn and ragged pieces of muscular tissue. The fibrous element was probably organised blood clot, the striped

muscular tissue being, without doubt, derived from the ruptured sterno-mastoid.

It is to another member of the staff of Guy's Hospital, however, that the credit is due of first publicly directing attention to these tumours, namely to Dr. Wilks, who, writing in the *Lancet*, of 1863, recorded three such cases, which he had successfully treated with gray powder and ointment of iodide of potassium, though, as he remarked, putting the obscure swellings on one side, there was nothing to lead one to suspect that the children were tainted with hereditary disease. Indeed, he did not hesitate to suggest that an equally good result would not improbably have come about spontaneously. The truth of that suggestion has since been fully recognised. A short time after this Mr. (now Sir James) Paget reported two cases of a similar nature, one being that of a child of four months, whose left sterno-mastoid, in consequence of the affection, "could not be fully lengthened." (This remark I take as an important link in the chain of evidence which connects the congenital tumour with subsequent wry-neck.) The treatment employed was directed against a possible taint of syphilis. The second of these children, however, was described as being "very healthy."

I have seen a considerable number of these tumours, and though I had long been of opinion that they were intimately associated with the causation of wry-neck, I did not, until after a good deal of search and inquiry, meet with a case in which the sequence was clear and indisputable. Eventually, however, a young man came to me—a butcher's assistant—who was impeded in his work, and disfigured, by his head being permanently drawn down towards the right shoulder, and his face rigidly turned to the left. This had been the case as long as he could remember. On interviewing his mother, I learned that his was a "cross-birth," and that in the neck of the newly-born child there was a "lump" noticed at a spot which evidently corresponded with the lower part of the sterno-mastoid. When I first saw this man

it was impossible to raise his head to the vertical position. And in recording the case as an extreme and old-standing one of wry-neck, I do it partly with the view of emphasising the statement that in the treatment of even neglected instances of the deformity, when the muscle has been thoroughly divided, a perfect result is attainable without resorting to the use of any band, support, or apparatus, such as are still described or depicted in our surgical text-books.

In less than a week after the performance of the tenotomy—as soon as the skin-wound was soundly healed—the man was made to undergo various exercises for bringing the head towards the opposite side: and whilst his head was thus brought over he was made to carry a heavy weight in his right hand, so as to strain to the utmost the muscles, tendons, fibres, and fasciæ, which had so long been contracted on the concave side of the neck. At night the head was supported on a firm pillow in such a manner, that even during sleep, correcting influence might not be in abeyance. These measures were supplemented by frictions and kneadings (such as are now usually dignified by the name of "massage,") over the affected tissues, and with the best results, for after a few weeks of treatment, the head and face could be freely turned and fully raised without any hindrance.

Here is another illustrative clinical report:—

Philip, a boy of six years, was admitted to the Children's Hospital on July 5th, with extreme contraction of the right sterno-mastoid; the right ear was drawn down to the shoulder and the head could not be brought up straight. As a result of the constant drag upon that side of the face and head, the right half of the inferior maxilla was imperfectly developed, and the cheek was less prominent, whilst the right corner of the mouth and the outer end of the right palpebral fissure were conspicuously drawn down; the right side of the head, moreover, was considerably smaller than the left.

The mother told us that he was the first child; that she was

fifteen hours in labour, and that as soon as she was well enough to look after the infant she noticed that he had a lump low on the right side of the neck. She had remarked that the head had always been drawn to that side.

In this case the muscle may have given way because of undue force having been applied by the midwife, but that is, I think, unlikely; no instruments were used, and no medical man was in attendance. Indeed, the labour was described as "natural, though somewhat tedious," and, in all probability, the rent was caused by a sudden twist which was imparted to the neck by the expulsive efforts of the mother. Although these congenital sterno-mastoid tumours are usually met with in breech and footling cases, still I have seen several of them in children, who, like the one under consideration, had made a peaceful entry into the world.

The mother is often the first person to discover the lump; for though the midwife may have seen it, she may have had reasons of her own for not attracting attention to it. In the case of fat, short-necked infants, the lump may for some time escape even the mother's keen notice, and it may not be until the child is a year or more old that anything is found to be wrong with the neck.

Thus it may be that the dependence of wry-neck upon congenital rupture of the muscle, or of one head of the muscle, is so usually overlooked.

But I have come across so many cases of wry-neck in which the cervical tumour had been noticed shortly after birth, that I feel ample justification in asserting that so-called congenital wry-neck is always, or with but few exceptions, the result of partial or complete rupture of the sterno-mastoid during parturition. In the case of a child with wry-neck, close-questioning of the mother will generally bring forth important evidence of there having been something wrong with the neck in early infancy, though it may not have been until a much later date that the child was carrying his head markedly awry.

Indeed, unless this theory of the causation of the common form of wry-neck be adopted, what other is there available? For every other congenital deformity and defect, from the cyst of the scalp to the webbing of the toes, the theory of arrest of development serves as explanation, but wry-neck demands some other interpretation; and this is found only in rupture of the sterno-mastoid and the subsequent contraction of the fibrous patch with which the rent is repaired.

If the practitioner would be on the look-out for the firm, oval and painless swelling in the sheath of the muscle, which is not infrequently to be found in the earliest weeks of infancy, and then set to work with gentle massage and manipulation, the hæmatoma would not only be promptly dissipated, but the risk of the subsequent occurrence of wry-neck would be diminished to the utmost.

Professor Sayre tells us, in his own peculiar and expressive style, that the treatment of congenital talipes should be undertaken at the earliest possible moment after birth by frictions, manipulations, and other gentle measures, which, at that tender age, are likely to prove sufficient for remedying a defect that, if left unattended to, is apt to entail protracted and serious treatment. Indeed, at so early a period does he urge the commencement of the rectification of the foot, that he barely allows the monthly-nurse time to wash the baby, or the medical attendant his hands! Experience proves the correctness of Sayre's advice, and *mutatis mutandis*, we should apply it to the treatment of torticollis of congenital origin, or, rather, we should prevent the occurrence of the deformity by directing our attention to its precursor, the sterno-mastoid tumour.

There are two other forms of wry-neck met with in children, to which I would briefly refer. The first is that which sometimes promptly follows on exposure to severe wet and cold; and at first sight it is not always an easy matter to form a positive opinion as to its exact nature. Here is a typical example of it:—

Edith B., *æt.* 9, when coming home from school on a rainy afternoon in early winter, put on and wore a hat which was "sopping wet." Next morning she began to complain of pains in her neck, under the chin, and in the occipital region; each day the pains grew more severe. She cried if her head was moved, or

Fig. 30.

even if she walked quickly or was shaken, and her mother said that all she wanted was to be allowed to keep quite still. There was no history of an injury to the neck, either recent or remote.

I saw her on the fourth day of her distress; she could not turn or nod her head, nor could she bend her face downwards; the

least pressure upon the top of her head distressed her, and apparently started severe radiating pains; she could not bear the firm pressure of the finger along the spinous processes of the cervical vertebræ, and she kept her head rigidly inclined to the right side as shown in the sketch. There was no hysterical element in the case; the child was evidently suffering severely. I placed her at once in bed without a pillow, not allowing her to stir from the horizontal posture, and by the use of large sand-bags we insured the head against movement. She was kept well covered and warm; cod-liver oil and iron were prescribed.

At once she began to improve, and on the fourth day of her confinement to bed she was so free from pain that the mother allowed her to get up, and even ventured to bring her to see me. Finding that she could then nod and shake her head, and that she had lost all her symptoms, I did not send her to bed again, but contented myself with instructing the mother to keep her very quiet, and obtaining the promise that I should be at once informed if any ill-effects were eventually manifested. Nothing further, however, occurred; the attack which had come on so suddenly, almost as quickly cleared itself away, and that completely.

The point might justly be raised as to whether the trouble was due to inflammation of the vertebræ, or even of the periosteum, because the symptoms disappeared so quickly; but keeping in view the fact of the child suffering most when pressure was made upon the top of the head, I do not see how the situation of the inflammation can be transferred from the vertebræ. There was pain also when pressure was made upon the spinous processes. The pathological condition was probably similar to that which sometimes quickly supervenes in the tibia or one of the other long bones of a child who has been exposed to wet and cold, which we recognise as an acute, though possibly transient periostitis and ostitis. There is no reason why severe inflammation should not attack the vertebræ and their periosteal

coverings almost as readily as the bone of an extremity, and it is quite likely that such an inflammation may pass off without entailing necrosis or any other serious lesion of the bones.

The other variety of wry-neck I will illustrate by the case of a child of twelve years who was brought to me, in the middle of last December, with her head drawn away, and her face deflected to such an extreme degree, that a line drawn upwards through the mid-sternum passed altogether clear of the right side of the face. The trouble had come on very rapidly after scarlet fever, with which she had been attacked last June; and although in December the only pain which was associated with the torticollis was obscure neuralgia in branches of the higher cervical nerves at the occiput, and "pins and needles" in the area of distribution of the lesser occipital and great auricular nerves, still there was a clear history of the poor child having been the subject of acute disease of the upper cervical vertebræ. So great, indeed, had been her peripheral pains and distress that "she could not bear to be moved an inch in her bed, nor even to have her hair combed."

Her case differs from the preceding one chiefly in degree, the symptoms being more acute, lasting much longer, and leaving the neck permanently deflected; and though there was no evidence of post-pharyngeal abscess, there is now a marked projection of the fourth cervical spinous process. It was evidently a case of cervical caries, and the other might be called a case of "potential caries," for I am satisfied that but for prompt treatment a disintegrating ostitis would quickly have supervened.

The concluding remarks which I have to make in connection with the subject of wry-neck concern the operative treatment of the congenital form of the distortion.

I suppose that there are few surgeons who do not experience a certain amount of anxiety when proceeding to effect subcutaneous division of the sterno-mastoid. For close beneath the muscle are

the internal jugular and the subclavian veins, to say nothing of the anterior jugular and other important tributaries of the subclavian vein.

Moreover, the deformity has, for aught the operator knows, so disturbed the normal arrangement of the parts as to place one of the large veins right in the track of his tenotome; then, to facilitate the division of the muscle the head is raised and the shoulder is drawn down, so that if one of the stretched veins should by chance be wounded just as the child is taking an inspiratory gasp, air would probably enter the venous circulation, and, being churned up in the right side of the heart, might arrest the circulation and give rise to an alarming if not a fatal syncope.

I have had experience of such an occurrence :—Having divided the inner head of the left sterno-mastoid of a little girl, I was proceeding to sever the clavicular part of the muscle, when we heard a distinct whiz of air being sucked into the surface-wound; there was also a considerable escape of venous blood, and the child became suddenly and desperately faint, and seemed to be on the point of death. The anæsthetist was greatly alarmed, and at once set about restoring animation. Happily his efforts succeeded, and we then had the satisfaction of getting the little patient back to bed alive; that the operation was left unfinished was, in the circumstances, a matter of small moment.

I need hardly say that it was with considerable apprehension the subcutaneous tenotomy was completed a few weeks later, and that at every subsequent operation for wry-neck the recollection of this case has haunted me.

Eventually, however, I determined to give up the method of operating in the dark, as it were, and since I have adopted the alternative plan of dividing the muscle through an open wound, I have found the cases doing equally well as regards results, whilst the comfort and satisfaction which are experienced at seeing exactly what is being cut can hardly be overrated.

In the pre-Listerian days one would no doubt have been unwise

to perform any operation through an open wound which he could have effected through a mere puncture in the skin; but subcutaneous surgery, though it has served us well in the days which preceded the dawn of asepticism, stands now, I think, somewhat in the way of true progression; and though I would not like to say anything disrespectful of subcutaneous surgery, I may venture to speak of it as constituting something of an anachronism. If we can be sure of our measures and of our craft, let us not fear to justify our faith in them by boldly applying them wherever they are likely to give us a definite advantage.

In every instance in which the surgeon has of late given up the subcutaneous method of operating he has greatly gained thereby. But even if this be admitted in general terms, some may argue that division of the sterno-mastoid ought never to be done except by a punctured wound of the skin. Possibly I overrate the advantage of the open method in this class of cases, but I certainly should be extremely sorry again to go through that experience of admitting air into the veins. And I say, by way of enforcing my point, that I have heard of a case in which a life was actually lost by an accidental wound of some vein during a subcutaneous operation on a wry-neck. Unfortunately such cases are not usually reported, and I take this opportunity of saying that I should be greatly obliged by reference to any casualties in connection with this operation; I would prove my obligation by keeping the names of the operators in the strictest confidence.

Those who may not have thought over the subject of subcutaneous operations in contemporary surgery may possibly think that the Lettsomian lecturer has overstepped the limit of truth and reason in speaking of them as an "anachronism." Let me, therefore, mention some of the fields in which, in the past, the greatest triumphs were achieved, and then it will at once be realised how greatly the glory of subcutaneous surgery has departed—the treatment of psoas abscess, of nævus (so far as regards the ligature), of a foreign body in the knee-joint, of a

calculus impacted in the urethra, of varicose veins of the leg, and of the spermatic cord; also of the treatment of club-foot and of reducible hernia. In the last two instances subcutaneous surgery has played a very useful part indeed, but it is at the present time, at least as regards the radical treatment of hernia, ancient history.

Of the open method of dealing with reducible hernia I shall have a good deal to say shortly, but before this I will, by way of bringing this part of my subject to a close, occupy a few minutes in describing an apposite case of wry-neck—it is that of the boy named Philip, whom I have already introduced (page 64).

On July 10th, chloroform having been administered, and the surface of the neck carefully cleansed, I made an incision parallel with, and about half an inch above the upper border of the clavicle, across the origins of the two heads of the sterno-mastoid, through the skin and fasciæ, thus completely laying bare the muscle; then a blunt-ended director was passed beneath the tendinous, sternal head, and that cord-like structure was divided. The clavicular piece was then divided from before backwards, when, the neck being straightened, the cut ends went far asunder, leaving a wide and deep gap. In the bottom of this gap the thin-coated internal jugular vein was plainly seen, of comparatively enormous size, and, as Dr. R. Priestley reports, "with a pulsatile wave distending it synchronous with the arterial pulse."

The vein lay close beneath the anterior border of the clavicular part of the muscle, and as we all watched it heaving in the wound, we formed the deliberate opinion that it would have been well nigh impossible to sever the muscle subcutaneously without transfixing the vein. And absolutely certain it is that if the two parts of the muscle had been divided through a single puncture in the skin, very serious disaster must have ensued; indeed, the method of dividing both heads of the muscle through a single puncture was always far more unsafe than that with a second puncture.

The skin-wound having been closed by a continuous suture, prompt union took place, and on the ninth day the boy was

carrying his can of shot or sand about the ward, though, for several days before this, his head and neck had been shampooed and worked at as he lay in bed.

In various other cases I have divided the sterno-mastoid by the open method, and so pleased have I been with it that there is little likelihood of my going back to subcutaneous section of the muscle.

Vesical Calculus.

The treatment of vesical calculus in boys is well worthy of a place in the Lettsomian Lectures, for there is scarcely a subject in the whole range of the Surgery of Childhood in which a greater revolution has taken place in the last few years, or in which, according to my belief, surgical opinion is in greater need of adjustment.

Only a short while ago we were inclined to imagine that we had reached finality as regards the treatment of calculous boys. It was rarely a question as to what operation was likely to be best suited for any individual case, for almost every boy with a stone in his bladder was subjected to lateral lithotomy. If the stone happened to be so large as to be removed with difficulty, and therefore with danger, through the front of the pelvic outlet, that difficulty had to be duly encountered. It was, indeed, often a matter of surprise to the disciple of Cheselden how satisfactorily even a large stone could be extracted through a small perineum.

I hold in my hand a stone which I removed by lateral lithotomy from an undersized boy of thirteen, who had been a miserable sufferer for some years. I cut him on a straight staff on the 4th June, 1884, and he left St. Mary's Hospital at the end of the following July, sound and well. The stone, which weighed upwards of $2\frac{1}{4}$ oz., seemed to completely fill his suppurating bladder; yet we got it away without much difficulty, and certainly without any ill-effect.

True, from time to time a surgeon did depart from the beaten

track of English lithotomists, and resort to the high operation, sometimes because he, rightly or wrongly, thought that he could not trust the lateral operation to provide for the safe passage of the stone, and sometimes, I fancy, because he could not quite trust himself to undertake it.

A feeling of anxiety is, I think, quite a proper one to possess the surgeon who is contemplating lateral lithotomy on a small, fat child; for he cannot foresee the difficulties which may be in store for him, nor is it possible to provide against them, and I know nothing more calculated to try the nerve and skill of a young surgeon than his first lateral lithotomy, performed in a crowded theatre.

When one looks at the portrait of the great Cheselden which hangs in the Council-room of the Royal College of Surgeons, one would be inclined to think that no such feeling could ever have disturbed his peace of mind. Yet, when alluding to his results as a tried and successful lithotomist, and in the very last sentence of his book, he kindly takes his reader into his confidence, and assures him that every operation for stone made him anxious. He says: "If I have any reputation in this way, I have earned it dearly, for no one ever endured more anxiety and sickness before an operation."

From the days of Cheselden lateral lithotomy has always been an operation of the highest interest and importance to the British surgeon; it has a grand history and a splendid reputation, and it is with extreme regret that we are compelled to admit that it can never again occupy that place in surgery which it held so long and so honourably.

As I have already remarked, on certain rare occasions the high operation had been resorted to, but the success attending it was not such as to secure a general publication of the results. The great difficulty was that of reaching and opening the bladder without implicating the peritoneum; the peritoneum having been traversed, subsequent leakage of urine was apt to involve it in a

fatal inflammation, while sometimes it happened that coils of intestine were found escaping from the abdominal wound.

Thus, Cheselden, speaking of two case in which the high operation had been performed at St. Thomas's Hospital, quaintly remarks that the procedure miscarried "by the cutting or bursting of the peritoneum, so that the guts appeared," and he then affirms that the method was subsequently as much decried as it had previously been commended.

There must have been a great deal of what I will venture to call 19th century human nature in our *confrère* of hundred years ago, for, in publishing his own statistics of supra-pubic lithotomy, he arranges his figures with considerable care and dexterity before proceeding to work out the actual results. But even after this artifice, his percentage of deaths was appalling. "Exclusive of the two before mentioned" (but why *exclusive* of these two failures? would he have excluded them if they had proved successful cases?), "I lost no more than one in seven." And, lest these results might seem to reflect upon his skill as an operator, he brings the matter to an abrupt conclusion with a remark which was prompted more by way of palliation than by good taste, "I lost no more," says he, "than one in seven, which is more than any one else that I know of could say."

One is glad to turn from all this to Cheselden's description of that operation which will keep his name immortal, where he tells us that of those of whom he cut by his lateral perineal method under ten years of age, 105 in all, but three died. What a splendid success? Obtained too, as it was, in those dark days when surgeons did not think it necessary to cleanse their hands and instruments before operating, nor, perhaps, afterwards; when fresh and foul cases were mixed in the same ward, and when perhaps, the one sponge of the ward was used for soaking up the "laudable" and the most acrid ichor.

Let me ask if the high operation which is so fashionable to-day in the surgery of childhood can show such results as these,

surrounded as it is with the many and great advantages which our Science and our Art have supplied? I say "No," and that without any fear of contradiction.

But, somehow, I feel that I have more faith in the great English surgeon when he has the knife, the forceps, or the stone between his fingers, than when, with the pen, he is drawing out percentage tables of his results in the quiet of his own library. For a little farther back, on page 332 of the edition of 1784, he alludes to the not unimportant fact that several of his patients contracted and died of small-pox after being cut, and, lest his figures should be unfairly influenced by these deaths, he calmly says that they "are not reckoned among those who died of the operation."

Thanks to Edward Jenner, the operating surgeon of to-day has no fear of his handiwork being marred by small-pox, but there are complications and calamities which are still to be reckoned among his foes. If he be a statistician, does he, like Cheselden, admit, but then disdainfully ignore, their prejudicial influence? Does he quietly relegate them to some special "lethal table"? Or, lastly, does he deal with all his records in such a manner that he would fearlessly undergo cross-examination on them by Sir Charles Russell in open court?

From the time that Cheselden discarded the high operation, I daresay that its reputation was never at a lower ebb than it was in the year 1878, when Dr. Garson, by an account of his ingenious and original investigations, definitely placed it within the pale of justifiable and useful operations. Dr. Garson's paper, which appeared in the *Edinburgh Medical Journal*, for the first time established supra-pubic lithotomy upon a scientific and trustworthy foundation; and though he treated the subject from the point of view of the experimental anatomist rather than of the practical surgeon, we must consider that the popularising of the operation is the direct outcome of his valuable report.

Due credit, however, must also be given to Dr. Petersen, of

Kiel, for helping on the procedure by the introduction of the collapsible india-rubber bag which he inflated in the rectum, a simpler and equally efficient substitute for which has since been found in the india-rubber ball of a hand spray-producer.

Before proceeding farther with this subject, however, let us try to settle that new and important question, "What is a stone in the bladder?" I would have thought the inquiry superfluous, but Sir Henry Thompson has raised it, and has, in my opinion, left it with an unsatisfactory answer.

But first I will briefly record two cases of what, in the meanwhile, I must, I suppose, call *calculoid* disease.

William B., aged two years and two months, was admitted to the Hospital for Sick Children in October, 1887. He had been troubled for three or four months with frequent and painful micturition, and now and then the urine had contained faint streaks of blood. Six weeks before admission he had been circumcised by someone in the hope that the vesical symptoms might be allayed by an empirical resort to a slight mutilation, which undoubtedly often succeeds in cases of enuresis.

But circumcision, when resorted to in such circumstances as these, should always be associated with the introduction of a sound—in every case of incontinence of urine in childhood the presence of a stone should not only be suspected, but inquired into. Whether this particular boy had been sounded or not, I am unable to say. Probably he had been, and the "calculoid" material being small, had escaped detection. Of course no surgeon is justified in saying after a single sounding, "There is no stone." All that he can do is to say, "I find no stone," and then, later on, should the symptoms persist, he must sound twice or thrice again. Any one can find a large stone; but the credit is to that surgeon who detects one when it is so small as to be, as it were, "embryonic."

It was a small concretion, such as that, which the house-surgeon, Mr. Gabriel, detected on sounding this boy under an

anæsthetic; and on the third day after his admission I tried to rid him of it by lithotrity. But even after incising the meatus urinarius I could not pass the smallest lithotrite—one measuring No. 6 in the beak and No. 5 in the stem, according to the English gauge. I had no alternative, therefore, but to cut the boy, either by the perineum or above the pubes. I chose the former operation, and I find this recorded in the notes, "The stone was too small for removal by the ordinary forceps," but it was easily extracted by the common ring dressing-forceps. It weighed 17 grains. The wound healed promptly. The boy was up on the couch in a fortnight, and in a day under the three weeks he walked out of the hospital well and happy.

Sir Henry Thompson says that this should not be called a case of "stone in the bladder," because the—what shall I call it?—weighed less than 20 grains. But suppose that this child had died, and in giving you my statistics of calculous children at the Great Ormond Street Hospital I had said, as I could then have said, that I had there never lost a child, what would you think of me if you found out afterwards that I had relegated the fatal case to the "lethal column," because of the diminutive size of the concretion? You would, I apprehend, conclude that my ethical standard was graduated after the manner of that of the young unmarried woman whom Dr. Middleton engaged as wet-nurse to Mrs. Easy:—"Not a married woman," exclaimed Mrs. Easy, "and she has a child!" "If you please, ma'am," interrupted the young woman, dropping a curtsey, "it was a very little one; very small indeed, and died soon after it was born."

The other case which I wish to cite is that of a boy of four years, who, when he was brought to the Children's Hospital on July 18th, 1888, had had symptoms of stone in the bladder for about a year; for about five months there had been blood in the urine. A very small stone was detected, which I removed by Bigelow's operation on the 25th July. The lithotrite used was No. 5 of the English gauge, but the fragments were got away

by an evacuating tube two sizes larger. The *débris* weighed eight grains, and was of uric acid.

I find it recorded in Dr. R. Priestley's notes that no blood was passed after the operation ; that there was no rise of temperature, and that on Aug. 5th—the eleventh day after the operation—the boy was discharged perfectly well. Before leaving he was, however, sounded on several occasions, in order that no fragment might be left in the bladder as the nucleus for a new concretion.

Sir Henry Thompson's question as to what was a stone in the bladder was raised in the *British Medical Journal* of Feb. 18th, 1888. In referring to the contents of his cabinet of calculi he says "there is not one weighing less than 20 grains, and I have never accepted or reported an example beneath that weight as a 'stone.' I have crushed many from that weight downwards to 5 or 6 grains." Still, I venture to think that, if he had removed that 17 grains stone he would have found a place for it in his cabinet rather than allow it to be blown about the desert dust.

So, also, with regard to those fragments removed from the bladder of the child of four years, which weighed but eight grains.*

Sir Henry Thompson (*Journal*, July 21st, 1888) concludes his paper with this expression of his views :—"The common sense of the profession will exclude a trifling concretion from taking rank under the well-known and time-hallowed term, 'a stone in the bladder,'" and that as a hard-and-fast line is impossible, "most surgeons will probably argue that a product of at least four or five times that weight might be held to constitute the smallest size to which that title should be applied." "In my own collection," he continues, "there is nothing less than 20 grains."

I confess that it surprised me not a little to learn that Sir Henry's cabinet did not contain a "calculoid" material, or the fragments of one, under 20 grains. I can only assume that he has not operated on calculous children in the early days of their

* For Sir Henry Thompson's reply to these remarks *see* Appendix, p. 97.

distress, for I cannot believe that he, having performed Cheselden's or Bigelow's operation upon a little boy, would say to his assistant, "Do not trouble to keep the result of this operation, for in my collection I admit nothing under 20 grains."

I, personally, take Surgeon-Major Freyer's view of the question, believing that a stone in the bladder is any calculous formation, no matter of what size or weight, which fails to pass out of the bladder spontaneously, and for the removal of which an operation is necessary.

It is to Surgeon-Major Keegan that our thanks are due for demonstrating, in opposition to old prejudices, the fact that Bigelow's operation of crushing and promptly removing all fragments of a vesical calculus—litholapaxy—is as well suited for boys as for men. We had always been taught that even if the boy's urethra were capacious enough to allow of the passage of a trustworthy lithotrite, his bladder could not tolerate the interference necessary for pulverising the stone.

But having mentioned the names of Bigelow and Keegan in this matter, it would be unfair, I think, to omit reference to the name of the English mechanician, Mr. Weiss, who made the instruments with which the first crushing operations were performed. Indeed, for nearly seventy years the name of Weiss has had an honourable association with the treatment of vesical calculus. And as one reads the history of the operation one feels that the father of the firm was constantly at the right hand of those great general surgeons who did so much for the relief of calculous patients, Liston, Cooper, Brodie, and Fergusson.

It is here my desire and endeavour very pointedly to direct attention to the fact that supra-pubic lithotomy is not the proper operation for the general run of calculous children—not the operation which is to bring the greatest amount of good to the largest number of children. It appears to me, however, that it is being resorted to almost as if it were the only procedure worthy of adoption. May I, to be brief, say that supra-pubic lithotomy

has been made a "fashionable" operation? If so, and if the impeachment be admitted, I need say nothing further against it, for fashion, in surgery as elsewhere, is proverbially blind.

It may be replied by some that they would willingly have employed Bigelow's operation in certain of their cases, but that they had not the good fortune to possess the necessary apparatus, and that they were, therefore, "driven" to the high operation. So much the worse for the children, and rather than subject them to the risks of a needless cutting operation, they should have sent them to institutions where the *armamentarium* was more fully equipped.

The pendulum of surgical opinion in connection with the treatment of calculous boys has been seriously disturbed in the last few years, but in due time it will swing again, I trust, in its proper course, though it will never again swing as it swung formerly. The appreciation of the operative procedures will probably be resolved on some such basis as this :—

Lithotrity after Bigelow's method should be adopted for every boy whose bladder is fairly healthy, whose urethra can be induced to convey the lithotrite, and whose calculus is not too large to be seized, nor too hard to be crushed by it. But the lithotrite should always have a trial, and even if it take an hour and a half to remove the last fragment of a large stone, the time will have been rightly spent.

Dr. Freyer has thus successfully removed a stone of which the fragments weighed no less than 700 grains, or nearly $1\frac{1}{4}$ oz., from a boy of nine years. This operation lasted two hours, and the boy was practically well a few days after the operation. But in every case of lithotrity the instruments should be at hand to finish the removal of the stone, if the occasion arise—as by a locking of the instrument—by a cutting operation.

For the boy whose urethra refuses to admit the lithotrite, even when the meatus has been incised, but whose stone is not very large ; and for the boy whose stone, though not large, proves to

be too hard for the lithotrite, lateral lithotomy will be the appropriate method of treatment.

Lastly, for the boy whose stone is as large as a pigeon's egg, or larger, the high operation as modified by the influence of Garson and Petersen should be undertaken.

Thus, unless I greatly err in my reading of the indications, nearly every calculous child of two years old and upwards will be treated after Bigelow's method; infants, and a few grown children, will be dealt with by lateral lithotomy, and a few large stones will be removed by supra-pubic operation; but a resort to this last method will be found of very exceptional occurrence.

Incontinence of Urine.

Before leaving the region of the bladder, I would like to say a few words upon the treatment of those unfortunate children who "wet the bed." At one time or another we have all had to deal with such, and in spite of the strict working of a carefully elaborated scheme of reward and punishment carried out by the parents; and then, in spite of the adoption of precautionary measures and treatment, founded by the medical attendant upon the soundest physiological bases, the child has persistently continued in his vicious habit.

Amongst the various drugs which have been specially tried and recommended in the treatment of this troublesome complaint, belladonna has generally occupied a foremost place; yet how often has that drug disappointed us! Still, it seems, we were, whilst trying it, journeying in the right direction.

In that valuable journal, the *Archives of Pediatrics*, which is published in Philadelphia, Dr. Baruch, who has had unusual opportunities of dealing with cases of nocturnal incontinence of urine, admits that circumcision is a remedy of extremely great value; he even goes so far as to make the statement that amongst the boys in a Hebrew orphanage which is under his care, enuresis is remarkably rare. But the gist of his paper is the strong

testimonial which he writes for belladonna. This is not an old testimonial redated, such as occasionally meets our attention, but a brand new one, and, I think, of the highest value.

The secret of the successful employment of the drug consists in so administering it that the pupil is dilated during the sleeping hours.

Dr. Baruch begins to administer the drug in doses of 1-64th or 1-32nd of a grain of atropine in the late afternoon, and regulates the amount to be taken solely by the influence upon the pupil. My own experience with this method is as yet limited and imperfect, but it has none the less been extremely gratifying.

Here is a simple formula for prescribing the drug—

℞ Atropiæ sulphatis, 1 gr.;
Tinct. aurantii, ʒj;
Aquæ, ℥j.

S. et. M.

"*Dose.*—One drop for each year. Administer it every hour in the late afternoon, or until the pupil is dilated at bedtime, and give a dose or two during the night should the pupil begin to contract."

Thus, if the boy be six years old he will take six drops—minims, shall we say? An ounce contains 480 minims, so that at each dose the boy would have 1-80th of a grain. Suppose he went to bed soon after six o'clock, and the first dose were given at three o'clock, he would have had 1-20th of a grain in all. This should suffice. If it do not suffice to dilate the pupil a little more may be given, or, if advisable, a little less. The practitioner must not expect to hit off the precise amount which is necessary for any individual case at the first start. But it is, of course, better to begin with too small a dose of the drug than with too large a dose.

I trust that I may be pardoned if I direct particular attention to the simplicity of the construction of this prescription—one grain, one drachm, one ounce, and one drop for each year.

I expect that I am not the only practitioner who is sometimes prevented from prescribing a powerful drug, because he cannot remember the officinal dose. Not every one has the moral courage to refer in the presence of the patient to a posological table. By so doing he might shake the confidence of the patient in the value of the medicine, and thereby diminish its therapeutic value. A careful practitioner, but one who is unable to burden his memory with tables of weights and measures, is often prevented prescribing such a drug as digitalin, strychnia, or atropine, for the simple reason that he fears lest he should be writing a man's dose for a child, or an infantile dose for an adult ; but I trust that this formula will enable such an one to prescribe atropine for incontinent children without fear or fault.

The Treatment of Ruptured Children.

One of the most attractive, and at the same time one of the most important, subjects which could be selected in connection with the practical surgery of childhood is that of congenital inguinal hernia. But at the outset of my remarks upon it I would urge the expediency of regarding the defect not as a pathological entity, but as merely a sign or symptom. Generally it is but the sign of arrested development in connection with the obliteration of the funicular process of the peritoneum; often it is a symptom of some oft-repeated and straining expiratory effort, such as that associated with whooping-cough, diarrhœa, chronic constipation, rectal polypus, vesical calculus, or impeded micturition.

Therefore, in every case of congenital hernia the surgeon should make it his first business to try and discover the cause of the protrusion, and promptly to direct his attention thereto. If the only discoverable cause be a patency of the funicular process, the surgeon will help by applying a little pressure over the inguinal region, so as to prevent further descent of bowel, and

thus give the tubular process the opportunity of completing its obliteration.

I have recently had a male infant under my care in whom we had ourselves produced an inguinal hernia by applying an appropriate band for the treatment of a troublesome umbilical rupture. When he was first brought to us he was apparently sound in the inguinal region, and there was no history of his having had any other protrusion than that at the navel, which, by the by, demanded unusually firm repression; but when we had at last got this securely imprisoned, bowel escaped into the scrotum. In short, the omentum and the intestine behaved somewhat like the marbles in a certain American puzzle.

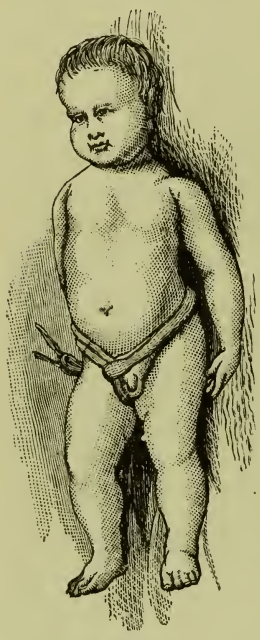
I assuredly do not remember having met with any other case in which a second protrusion had been brought about in this manner, but those who were conducting the treatment with me made no doubt whatever of the cause and effect being as I have narrated. Doubtless, as development proceeded, and the abdomen attained its proper proportion, there would be ample accommodation for all the viscera.

We learn from development that at an early period of intra-uterine life the abdominal cavity is for this purpose altogether inadequate, and that, being open in the front, the viscera remain for a considerable time spread upon the outside of its anterior wall, and that afterwards, as growth increases, space is arranged for their reception within the embrace of the abdominal walls. After birth, if the three chief apertures are not securely closed, forced expulsive efforts are apt to drive a knuckle of bowel or something more from the interior of the general cavity.

With the view of diminishing the risk of violent expiratory efforts, the surgeon will try to arrange that the infant takes enough food to prevent his crying for more, and yet not enough to make himself strain with vomiting. He will also keep him as much as possible in the horizontal position.

For tender infants spring-trusses are ill-suited; the necessary

pressure may be usually obtained by employing a skein of wool after the manner described by Mr. Lund, and originally suggested, I believe, by the late Mr. Coates, of Salisbury: A folded skein of Berlin wool should have the loop-end laid over the emptied inguinal canal, the other ends being carried spike-wise above the opposite pubes, across the front of the abdomen, and over the hip of the weak side. This running end is then passed through the inguinal loop, carried round the inner side of the thigh, and over the buttock, to be firmly secured to that part of the skein which is already just above the great trochanter. The infant can be washed with this truss on, a fresh one being subsequently applied. The arrangement is well shown in the accompanying illustration, for which Mr. Pye has kindly lent me the woodcut.



Fig, 31.

My experience with this simple apparatus is that the monthly nurse, or child's nurse, quickly sees its value, and interests herself in applying the skein; that there is no fear of its making the child sore, or of hurting him, and that, with average skill and care, its compression can be directed in so exact and efficient a manner as in time to produce effacement of the weakness.

Supposing that there is a tight prepuce, the indication for treatment is obvious, and again and again I have found a resort to it of the greatest practical advantage. I need not enter further upon this important matter; it has been fully dealt with in a valuable paper by Mr. J. Arthur Kempe in the *Lancet* of 1878.

If after the most careful inquiries no cause for the hernia can

be discovered, and if the use of the skein of worsted proves disappointing, a truss must be carefully chosen and adjusted. If the hernia be troublesome the compression should be employed by night as well as by day, for it is a great matter never to give the bowel the chance of coming down.

As a rule, the truss which the instrument-maker chooses for the child is needlessly strong in the spring, and the skin becoming red and sore, all pressure has to be remitted for a while. This is, of course, most unfortunate. Occasionally I have seen an extensive ulcer marking the site at which the pad pressed. The band and pad of every truss should be covered with a soft piece of linen, and the area of skin which is pressed upon should be washed and dried with the most careful attention, and then dusted with violet-powder.

It is a matter of almost daily experience that with the exercise of due care in the choice of the truss, and with patience in its subsequent employment, the child may be expected to "grow out of" his trouble. It will be impossible to say at the outset when the cure will be effected. Many children lose the defect within the first year; in some the treatment has to be carried on through several years, and in others the cure does not arrive till puberty. Lastly, there are some cases in which, though manhood has been reached, the truss must not be discarded.

Occasionally one sees a child wearing a truss where there is absolutely no need for pressure in the inguinal region, and where its employment must therefore be harmful; when, the funicular process of peritoneum having been obliterated, the risk of descent of the bowel has become a thing of the past. And, further, on rare occasions a child is found wearing a truss who has not, and who never has had, any inguinal hernia whatever.

The class of cases in which this last error is most likely to be committed is that in which the peritoneal process has been occluded at the internal abdominal end, and also over the lower part of the cord, but in which the intermediate portion is dilated

into an encysted hydrocele. It is by no means easy in some of these cases to make up one's mind as to the nature of the rounded tumour, especially if it be lodged within the inguinal canal, and, therefore, beyond the reach of examination by a lighted taper. But the fact of the tumour remaining of the same size day after day, and of its being irreducible and hard, without the child exhibiting symptoms of strangulation, is generally sufficient in the way of diagnosis. In such a case the introduction of the hollow needle of a hypodermic syringe resolves both the tumour and the doubt.

There are some herniæ, as we all know, with which it is beyond the power of the surgeon successfully to deal with any truss whatever; the protrusion may keep up for a short while, but as soon as the child begins to get about it slips down again, and lies compressed beneath the pad. If a truss with a stronger spring be employed the pressure becomes intolerable, or the skin is chafed. The medical attendant and the parents grow weary of the case, and the child is allowed to go about with a certain amount of bowel in the scrotum—an amount which generally becomes an increasing quantity. To offer an equally unsatisfactory state of affairs, though the hernia of another child is not large, nor particularly unmanageable, his parents are too poor to supply him with the necessary apparatus, and too ignorant or careless to give the needful help in making it available.

What, I ask, is the proper course to adopt with regard to such children? "What is their exact age?" some one may inquire. My own opinion is that this has very little influence on the question, when we have to do with ruptured children who cannot, for one reason or another, be satisfactorily dealt with in what I will call the gentle method—that is, without operation. "But," rejoins the inquirer, "you surely will not advise a cutting operation for the cure of a reducible hernia in a very little child!"

The surgeon's reply is that it is his duty to cure the child, and

that if he cannot do so in a bloodless way, he must submit him to the risk of a cutting operation.

And now comes a very important point in the consideration of the question, and one of which we must not for a moment lose sight when estimating the risks of the radical treatment—unless the boy be solidly cured of his hernia he will be every day of his life in peril of a knuckle of bowel becoming strangulated. And if the strangulation occurred at a time when, and at a place where, adequate assistance is not forthcoming, or if the child—now grown into manhood, and still careless of himself—fail to call in surgical aid until the intestine has become tightly pinched for some hours; what about *risk?* Here surely is a terrible risk; yet it is the same patient, the same open funicular process, and the same hernia with which we had been dealing years before.

Unfortunately, though we have diminished risk in connection with the practice of our Art, we have not entirely abolished it. Indeed, every important step through life is associated with risk, and surgical progress can never be freed from it. But though we must not allow ourselves or our patients to think too lightly of surgical risk, still we shall do well to encounter it in such circumstances as we are able to select, not in those which blind chance would force upon us.

Of course, there will be some badly-ruptured children who are not suited for the radical operation—the feeble, sickly, ill-nourished, and imbecile. Sir Joseph Lister has rightly said that the judicious selection of cases is an antiseptic measure,* and certainly if we are to get the best results for the operative treatment of congenital hernia we must exercise considerable discretion in the choice of our subjects.

Sometimes we hear the operative treatment spoken of as the "radical cure." Radical *treatment* it is, and *cure* it may be; but to talk of it as the "radical cure" is to surround the procedure

* *Brit. Med. Jour.*, Aug. 28th, 1880.

with an attractiveness which may mislead the parents of the child and disappoint the inexperienced operator.

I cannot attempt to say in what percentage of cases in childhood the radical operation fails to cure the hernia, and statistics which may be prepared from the published reports can, for obvious reasons, be barely approximate. Surgical statistics which are taken over general areas are never of much use, for the collector cannot possibly give due consideration to such important factors as the nature of original defect, the capacity of the operator and the physical value of the patient.

The open method of the treatment of congenital inguinal hernia is based upon a very solid ground, inasmuch as it is designed simply to make good a defect which Nature had omitted efficiently to deal with. At, or shortly after, birth there should no longer be a tubular communication between the peritoneal cavity and the tunica vaginalis; should the passage remain wide open a piece of bowel is more than likely to enter it, and, having once descended into it, the task of keeping it out by a truss is, as we have already admitted, sometimes one of great difficulty, and in rare instances a practical impossibility. These last are the cases for which the open method is needed.

The operation, then, having been forced upon us by circumstances, or deliberately advised in the exercise of a discriminating choice, it will be well to have the child lying in bed for a few days in order that he may be "broken in," and made to understand that he must be quiet and obedient; the bowels are well opened, and the temperature-chart is carefully watched. The thermometer sometimes gives timely caution to the surgeon who is proposing to operate upon the child, and sometimes it happens that on the very morning of the day fixed upon for the ordeal a rise of temperature shows that the patient is sickening from something—measles or scarlet-fever, for instance. I do not say that the case would undergo shipwreck if the operation were done under these circumstances, but one naturally prefers not to put to sea when the storm-signal is hoisted.

The Operation: The entire inguinal region having been rendered aseptic, and the sac being empty, a transverse fold of integuments is pinched up over the external abdominal ring, and transfixed; and if the incision thus made seems of doubtful length, it is better at once to increase it. Bleeding vessels having been secured by the catch-forceps, the coverings of the cord are traversed, layer by layer, until the sac and the cord are discovered.

When the cord is reached, the difficult part of the operation begins, and this it is very easy to underrate. In reading an account of the procedure some such phrase as this may not infrequently be found:—"The funicular process is raised from the cord and occluded by a ligature at the internal abdominal ring." But in most cases this separation is far more easily talked about than effected, for not only is the peritoneum thin and readily torn, but the adhesion to the cord is extremely intimate.

Moreover, the vas deferens is very slender, and might, I am sure, be easily ruptured by rough fingering. In one of the last cases on which I operated, the elements of the cord were actually within the funicular process, that is to say, the cord was ensheathed in peritoneum just as is the small intestine, and we had to open the process before we could by any possibility reach the cord. It was absolutely impracticable to effect the separation, and when we were placing the ligature around the upper end of the process, we knew full well that the occlusion could be only partial. The day following the operation, the house-surgeon, Mr. Brook, noted that the dressings were soaked with clear serum, which had been poured out in such quantities that he felt sure that much of it must have drained down from the open peritoneal cavity. However, the child did extremely well, and was duly sent out soundly cured.

When the abdominal end of the sac has been isolated from the cord, the surgeon sees that it is empty by squeezing it between the finger and thumb, he then slips an aseptic silk

ligature high up the process, and, instructing his assistant to pull it well down, he ties the ligature as high up as possible—flush with the peritoneal cavity—and cuts the end short.

Unless the ligature be placed at the very top of the process, a fossa must inevitably be left upon the abdominal surface of the peritoneum, and of this an errant piece of bowel would be likely to take advantage in trying a fresh descent. It is with the view of effacing every trace of aperture and depression that, after the funicular process has been cut across, the abdominal end is, as recommended by some operators, screwed round and round on its long axis so that the obliteration may extend to the highest limits. Plastic inflammation which, in a small degree, must needs follow this usage of the peritoneum firmly glues the serous pleats together, and in time converts the old passage into a fibrous cord—as it should be. The use of a strong suture securing the twisted process prevents its becoming unwound.

No doubt the effectual treatment of the top of the sac is an important element in the treatment, and there are some operators who, having securely blocked the peritoneal aperture, pay no heed to the inguinal canal, nor to the external abdominal ring. I, however, take my stand with those who prefer to make assurance doubly sure, lacing up the lower end of the inguinal canal—especially the external abdominal ring—with one or two strong sutures. These are brought through by an aneurysm-needle in a handle, they for the most part bring the upper and inner border of the external ring down towards Poupart's ligament.

It has been urged that these sutures should be made to traverse the conjoined tendon, but I apprehend that it requires unusual operative skill and anatomical assurance for a surgeon to be able to affirm that he does certainly include the conjoined tendon in every child with which he deals. I, for my part, claim no such experience or dexterity.

In taking up the outer pillar of the ring there is considerable risk of wounding the deep epigastric artery, if, in the hope of securing a deep sweep for the needle, the surgeon lets the point pass far from the aperture. I have known this accident happen in the case of a man who was being submitted to the radical treatment after an operation for strangulated hernia, and at the *post-mortem* examination a large collection of blood was found in the depths of the wound. Probably this accident is less likely to happen when the blunt aneurysm-needle is being used than when the surgeon is traversing the tissues with a sharp-pointed needle.

After the funicular process has been securely ligated and divided, it may be gently thrust up within the inguinal canal. It matters little, I think, what is done with the scrotal end of the process. But surely the operation is being surrounded with unnecessary mystery and refinement, when it is advised that so much of the funicular process be removed as will leave the operator just enough to fashion a new tunica vaginalis for the testis, the free edges being stitched together close above the testis to complete the serous investment. For my own part, I leave the tunica vaginalis to take care of itself, and confine my attention chiefly to demonstrating to the truant bowel that it has no right-of-way into the funicular process.

The subcutaneous methods of Wutzer, Wood, and Spanton dealt in the main with the inguinal canal, which the descending hernia had opened up and kept widely dilated; they were empirical measures when compared with that under consideration, which is directed towards making good an obvious physiological defect the result of arrested development.

The treatment by injection was also incomplete and unsatisfactory, in that it aimed at producing a cure of the hernia by causing consolidation of, and contraction in, the tissues around the funicular process instead of dealing with that process itself. And even Keetley's method of performing the oak-bark

injection treatment, namely, by cutting down upon the neck of the sac, so that he might see exactly where the fluid went, proves disappointing. Having cut down to the sac, the temptation to deal with it in a business-like manner would, I should have thought, be irresistible.

I am not aware if Mr. Keetley still practises the open method of injection, but I should not be surprised to hear if his further experience had induced him to complete the cutting operation with suture instead of syringe.

Some of the most troublesome cases with which the surgeon was called upon to deal under the old system were those in which an adhesion existed between the testis and a knuckle of small intestine, so that when the testis was in the scrotum the bowel was there also, and no truss could be applied; whereas, if the bowel were returned and a truss were applied, the surgeon had the dissatisfaction of knowing that the testis was deprived of all chance of completing its physiological journey.

The issue of the treatment of these boys was generally that the testis sacrificed its liberty to its liaison, and became a close and permanent prisoner within the abdominal walls.

Why the testis and the bowel should thus be linked together no one has yet explained, though it has been suggested—perhaps rightly so—that the adhesion is the result of a localised attack of intra-uterine peritonitis.

An interesting fact in connection with a testis which has failed to complete its descent, or which has wandered into the perineum, or to the groin, is that it is very often imperfectly developed. And, more than that, in a large proportion of cases of congenital hernia the testis at the bottom of the sac is markedly deficient in size and in firmness.

When Mr. J. J. Clarke, the present Curator of the museum at St. Mary's Hospital, was my house-surgeon, we had several operations for the radical cure of congenital hernia in adults, in which

the protrusion was associated with an imperfectly developed testis; and careful microscopic examination of each gland after its removal proved it to be destitute of spermatozoa, and, therefore, of no physiological value. In certain of these cases the hernia had been of comparatively recent occurrence, so that it could not be urged that the atrophy of the gland was caused by the pressure of the prolapsed bowel.

Mr. Crowle, moreover, the surgical Registrar of St. Mary's Hospital, tells me that in five other cases in which I had removed an atrophied testis, which was associated with congenital inguinal hernia in adults, the gland was in each instance destitute of seminal filaments.

How is it to be explained that an open peritoneal process is so often associated with a defective testis? When considering the subject of congenital malformation and defects, the student is probably struck with the fact that when Nature has been neglectful or forgetful in one place, she shows evidence of hasty and imperfect work in some other region also. Thus hare-lip is not infrequently coupled with some such error as club-foot, and spina-bifida with webbed fingers or imperforate anus. Hare-lip is very often associated with cleft-palate, as already noted.

It is quite possible that when Nature realises the fact (if I may be allowed the expression) that she has neglected to provide for the structural efficiency and anatomical disposition of the testis, she does not deem it necessary to surround it in a tunica vaginalis which is separated from the general peritoneal cavity; so she eaves the gland, which is in a fœtal stage of development, either as regards structure or position, or both, in a peritoneal investment which is also formed upon the fœtal type. Apparently Nature places but a slight value upon an imperfectly-developed testis; man, on the other hand, is apt to impart a considerable amount of sentiment into the calculation when the question of the removal of an undeveloped gland is raised.

There are no cases of congenital, reducible hernia, however,

with which I have a greater pleasure in dealing than those in which there is an imperfectly-developed testis. The cord and the sac are laid bare; the testis is removed; the funicular process and the cord are tied together, the ligated stump of the sac and cord is passed well within the abdominal walls, and the inguinal canal is completely closed by suture. These cases are not only extremely well suited for the radical treatment, but, so far as my experience serves, they almost invariably prove completely successful.

THE END.

APPENDIX.

The Lancet, February 15, 1890.

A NOTE ON THE THIRD LETTSOMIAN LECTURE BY MR. E. OWEN.

To the Editors of the "Lancet."

SIRS,—I feel sure that Mr. E. Owen will regret having, no doubt unintentionally, but very seriously misrepresented me, in some extended and somewhat caustic remarks regarding a proposal which I made about two years ago for the consideration of my brethren as to the weight of calculus which should be held to constitute "a stone in the bladder." I am willing to suppose that his mistake has occurred from reading too hastily one of the articles quoted by him—that in the *British Medical Journal* of Feb. 18th, 1888, the first of a brief controversial series, where the subject was opened. Yet nothing can be clearer than the following terms laid down in that article: "I venture to think that most of my brethren will agree with me that twenty grains is the very lowest weight *in the adult*, the removal of which should be esteemed an operation for stone in the bladder."

It certainly never occurred to me, nor had I supposed it would occur to anyone else, to make any such proposal respecting "stone" in the child's bladder. It was with no little reluctance that I raised the question "What is a stone in the bladder?" but I felt compelled to do so because a series of cases so described had just been published in the journal named, in one of which "the stone" consisted of a little concretion weighing two grains, and in another of three grains, removed from the bladder of *two adult cases* of twenty-four years and sixty-five years respectively. I further added that in this series of "operations for stone in the bladder" the "total weight of the calculi in eight *adult* cases amounts to no more than thirty-seven grains, an average of about four grains each." In that same paper were several children's cases, but these, as being no part of the matter in controversy, I did not notice. Thinking it desirable to continue the old custom of regarding these little products in the adult as examples of "gravel," and also to adopt some

limit in regard of weight to denote a "stone" in the adult, I attempted, without any desire to dogmatise, to elicit professional opinion thereon, adding that my own practice in such cases had been uniformly guided by the twenty-grain limit suggested.

It will now be seen that Mr. Owen's criticisms based on the assumption that my proposal applied to cases of children, have no bearing whatever on anything I have said or written, and are therefore wholly irrelevant. Allow me to disclaim all desire to revive any past controversy, always to me most distasteful, but it is impossible not to correct a misapprehension of my views so remarkable, and, unfortunately, so widely made public, although forming part of an otherwise interesting communication.

I am, Sirs, yours faithfully,

HENRY THOMPSON, F.R.C.S.

Wimpole-street, *Feb. 10th*, 1890.

The Lancet, February 22, 1890.

"WHAT IS A 'STONE' IN THE BLADDER?"

To the Editors of the "Lancet."

SIRS,—In the *Lancet* of Feb. 15th Sir Henry Thompson calls attention to the fact that in the third Lettsomian Lecture I have misrepresented his views upon the question as to what is the lowest weight admissible for a "stone" in the bladder. To my regret, I find that when reading his reply to Dr. Freyer (*Brit. Med. Journ.*, Feb. 18th, 1888), the words "in the adult" escaped my notice. (They were not, however, in italics, as quoted by Sir Henry Thompson last week.)

At the close of the correspondence which his original letter called forth, I was not the only surgeon who was left in the belief that Sir Henry would recognise nothing as a stone which did not reach his arbitrary standard of "twenty grains." The sentence which gave me that erroneous impression—which, indeed, seemed incapable of any other construction than that which I put upon it—was this: "Thus in my cabinet of calculi, now numbering about 950 cases removed by operation, *there is not one weighing less than twenty grains, and I have never accepted or reported an example beneath that weight as a*

'*stone.*'" (The italics are mine.) There is nothing to suggest that Sir Henry had another cabinet for boys' calculi or a separate scale for weighing them.

Again, in his second letter (*loc. cit.*, July 21st, 1888), without making any exception for children, Sir Henry writes:—"To close a paper already too long, I think there is little doubt that the common sense of the profession will exclude a trifling concretion of two or three grains from taking rank under the well-known and time-hallowed term, 'a stone in the bladder.' In my own collection there is nothing less than twenty grains." If Sir Henry Thompson has, then, fixed the lowest weight for a man's calculus at twenty grains, what, I would ask, is to be the lowest weight acceptable in the case of a child or of an infant? This was the matter which interested the Lettsomian lecturer, and to it I do not think a satisfactory answer can be forthcoming. My contention is that any concretion which has to be removed by operation—no matter how small it may be—is a stone.

I think that Sir Henry must admit that he, a master of English, and speaking *ex cathedrâ*, should not have left the statement of his opinions in such a form as to mislead even a dull reader. That I have misrepresented his views there is no manner of doubt, and I beg that you will give me this opportunity of assuring him that I much regret it, though, at the time, I was speaking in perfect good faith.

I am, Sirs, truly yours,

Feb. 17th, 1890. EDMUND OWEN.

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